

WATER RIGHT CLAIM EXAMINATION MANUAL

Part II EXHIBITS APPENDIX



ISSUED BY AND FOR
WATER RIGHTS ADJUDICATION BUREAU
WATER RESOURCES DIVISION
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

2011

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HOW TO FILL OUT YOUR STATEMENT OF CLAIM

HOW TO FILL OUT YOUR STATEMENT OF CLAIM FOR EXISTING WATER RIGHTS

I. BACKGROUND

In 1979, the Montana Legislature passed Senate Bill 76, a law authorizing a process to adjudicate claims of existing water rights. "Existing water rights" originated before July 1, 1973, and were generally established by putting water to beneficial use. As used here, a water right is:

- 1) a specific quantity of water;
- 2) taken from a single water source;
- 3) first used or appropriated on a specific date (commonly referred to as priority date).

Water judges have been appointed to review and confirm valid water right claims in Montana courts. Making complete and accurate claims to your existing water rights is the first step of the adjudication process.

FAILURE TO CLAIM AN EXISTING WATER RIGHT AS REQUIRED BY LAW, WILL RESULT IN A CONCLUSIVE PRESUMPTION THAT YOU HAVE ABANDONED THAT WATER RIGHT.

II. WHO MUST CLAIM THEIR WATER RIGHTS?

Only water rights that originated before July 1, 1973, are to be claimed under Senate Bill 76. If your water rights originated after July 1, 1973, do not file a claim under this program. Water uses that first began after July 1, 1973, should have received either a "Permit to Appropriate Water" or a "Certificate of Water Right" from the Montana Department of Natural Resources and Conservation (DNRC). If you plan a new water development, or expansion of an existing development, contact your nearest DNRC field office to make application for a permit. The field offices are listed on the last page of this booklet.

Also, water users are not required to file claims on some pre-1973 uses, but may file claims voluntarily. These exempt water uses are stockwater and domestic (household) uses of:

- 1) groundwater (wells or developed springs), and;
- 2) instream flow (direct use from a stream without using a ditch, pipe, dam, bucket, pump or other diversion method).

All stockwater uses from surface water diversions, such as reservoirs and ditches, must be claimed.

Water rights in the Powder River Basin for which declarations have already been filed with DNRC are exempt from filing claims.

SPECIAL NOTE ABOUT GROUNDWATER USE

Groundwater Codes passed into law in 1961 required that all groundwater uses beginning after January 1, 1962, be recorded in the County Clerk and Recorder's office on a "Notice of Completion" form. If your groundwater use began between January 1, 1962, and July 1, 1973, and no Notice of Completion was recorded in that time period, follow these instructions:

- 1) obtain Form 602, "Notice of Completion of Groundwater Development", from the County Clerk and Recorder's office or from any DNRC field office;
- 2) complete the form and return it, along with a \$5.00 filing fee, to the DNRC field office nearest you.

If the groundwater use has a flow rate of under 100 gallons per minute, the form will be processed and a "Certificate of Water Right" will be recorded in the county courthouse and sent to the owner. The priority date assigned to the water right will be the date DNRC receives the completed Form 602. A water right claim under Senate Bill 76 can be made.

If the flow rate is over 100 gallons per minute, and the use is for a purpose other than domestic or stockwater, a water right statement of claim under Senate Bill 76 must also be completed and sent to the DNRC field office. Domestic and stockwater uses may be claimed voluntarily.

III. MAKING YOUR WATER RIGHT CLAIM

Claims must be made on forms available at the County Clerk and Recorder's office or any of the DNRC field offices listed on the back of this booklet. The forms are:

IRRIGATION FORM - for water uses for irrigation of field crops, animal pasture, hayland, truck garden, tree farm, etc. This form should also be used to claim the irrigation of a lawn or garden over 2 acres in size and shelterbelts over 5 acres in size.

STOCKWATER FORM - for water uses for livestock. These include poultry, sheep, goats and hogs as well as larger livestock. Fish and wildlife uses of water should not be claimed on this form, but on the OTHER USES form.

DOMESTIC FORM - for water uses for individual household purposes such as cooking, washing and laundry. Domestic water uses also include the irrigation of a household lawn, garden and windbreak.

OTHER USES FORM - for water uses including;

Fish Raceways	Geothermal	Mining
Fish & Wildlife	Navigation	Power Generation
Commercial	Fire Protection	Recreation
Industrial	Agricultural	Oil Well
Municipal	Spraying	Flooding

Water uses other than domestic, stockwater, irrigation and those listed above, should also be claimed on this form and briefly explained.

Each water right must be claimed on the form that describes the water's use. If a single water right has more than one use, a separate claim must be filed for each use of the water.

Each completed water right claim should consist of:

- 1) a complete notarized claim form;
- 2) a properly labeled map;
- 3) documentation supporting your claim;
- 4) the filing fee.

As a suggestion, gather all the information you can find about your water right before filling out the claim form. This would include any documentation as well as a map. It may be helpful to complete the map before you fill out the claim form. Suggestions for properly completing a map can be found on pages 5, 7, 9 and 12 of these instructions.

Completed claims must be filed with a field office of the Department of Natural Resources and Conservation. Claims must be filed or postmarked before MIDNIGHT, JANUARY 1, 1982.

A water conversion table, land description guide and list of water measurement data are also on the last page of these instructions. An additional booklet, "A Guidesheet to Water Right Documentation, Water Measurement Calculations, Legal Land Descriptions for Existing Water Right Claims", is available at the field offices or any County Clerk and Recorder's office, and may be helpful. Remember, these are only guides; individual on-site measurement of flows and volumes is the most accurate method of determining water use.

IV. CLAIM FILING FEES

A filing fee of \$40 is required for each water right claim, with these EXCEPTIONS:

- 1) the total fee shall not exceed \$480 per landowner per water division;
- 2) no filing fee is required for claims to water rights contained in a water decree.
- 3) exempt water uses from the same source, claimed voluntarily, can be made for a single \$40 fee. These claims must be filed at the same time. Make checks payable to: Department of Natural Resources and Conservation, or DNRC.

V. HOW TO FILL OUT YOUR CLAIM FORM

After selecting the proper claim form, follow the appropriate step-by-step instructions for completing your claim form. The claim should reflect water use as it existed before July 1, 1973.

The claim form is a court document. *Each form must be filled out completely. Leave no questions unanswered.* When the claim is complete, it must be signed by at least one owner and witnessed by a licensed notary of any state. Fill in your claim with a typewriter or print in ink.

IRRIGATION FORM INSTRUCTIONS

1. OWNER AND CO-OWNER

The actual owner of the water right should be printed here. If there is more than one owner, list only one name per line. If there are more than two owners, list the additional owners and their addresses on the Owner Name Addendum Sheet or on an attached sheet of paper. The owner Name Addendum Sheet is also available at the County Clerk and Recorder's office or the DNRC field office. A permanent mailing address for receiving correspondence must be supplied for each owner and co-owner.

2. PERSON COMPLETING FORM

Fill in your name and mailing address here.

3. NAME OF DITCH, CREEK OR RIVER

If you use a ditch, or pump water directly from a creek, river, slough, lake or reservoir, name it in item 3. If no name exists, print "un-named" in the space. Check the box marked "Irrigation". If your source is a well or spring, indicate this in the blank.

4. METHOD OF IRRIGATION USE

Mark the box that identifies the method of irrigation used. If more than one method is used, mark the appropriate boxes.

5. SOURCE OF WATER

Check only one source and print its name. If a water source has more than one name, enclose the additional names in parenthesis. If no name exists, print "un-named". After naming the stream from which you use water, or the stream which supplies a lake or reservoir, you are asked to name the body of water to which the stream is a tributary. In other words, name the first down-stream body of water which receives the water from your source. **EXAMPLE:** The Yellowstone River is a tributary of the Missouri River because the Yellowstone River flows into the Missouri River.

6. POINT OF DIVERSION

"Point of diversion" refers to the point where the water is taken from its natural source for your use. The "point of diversion" is the actual location of the headgate, dam, pump or other diversion means. The point of diversion for an off-stream reservoir is the point at which water is diverted from the stream to be

taken to the reservoir. Print the name of the county in which the diversion is made. Locate the point of diversion to a 10-acre area within the section. Page 12 of these instructions illustrates a section break-down that may be helpful. If the land has been subdivided, give the name of the lot, block and subdivision in addition to the section quarters, township and range. If your point of diversion is in a government lot, give the government lot number, section, township and range.

List only one point of diversion on each claim form. Describe additional points of diversion from the same water source on the Point of Diversion Addendum Sheet available from the County Clerk and Recorder, or on an attached sheet of paper. Do not list secondary diversions after the water is diverted from the source. For example, after water is diverted from a stream into a ditch, water turn-out points along the ditch need not be listed on the claim form.

7. MEANS OF DIVERSION

The "means of diversion" is how the water is taken from the natural source. Select the type of diversion used and mark the proper box. You may check one or more boxes. If a pump is used, indicate the pump capacity in gallons per minute.

8. MEANS OF CONVEYANCE

"Means of conveyance" is how the water is transported from the point of diversion to the area of use. You may check more than one box.

9. PLACE OF USE

The "place of use" for a water right is the location of the property where the irrigation takes place. If any changes in the place of use have occurred since July 1, 1973, and have not been recorded with DNRC, contact the nearest DNRC field office to complete a Form 606, "Application for Change of Appropriation Water Right."

On the claim form, indicate the county where the irrigated land is located. Use a separate line on the form for land irrigated in different sections. Also, use separate lines for smaller parcels located in different areas of the same section. If you need additional lines

for your legal land description, use the Place of Use Addendum Sheet available from the County Clerk and Recorder's office, or list them on a sheet of paper and attach it to the form. Be sure to indicate land irrigated in different counties. Divide the section into the appropriate quarters or halves to best describe the location of acreage in that line. Total acreage should be written on the bottom line of the claim form, including any acreage listed on attached sheets. Claim the greatest number of acres ever irrigated by the water right.

10. FLOW RATE CLAIMED

This is the rate at which you take water from the source for use. Water measurement methods can be expressed three ways: gallons per minute (GPM), cubic feet per second (CFS) and Montana miners inches (MI). You may wish to claim the flow rate given on your original water appropriation or decree. However, since actual measurement was rarely made by the original appropriators, these figures are often inaccurate. Actual flow measurement is always best. The water equivalents table on the back of this booklet may be helpful. If you are claiming a reservoir, the flow rate is the maximum rate water flows into the reservoir.

11. VOLUME CLAIMED

"Volume" is the maximum total amount of water diverted in any year. Volume is expressed in acre-feet per year. The volume of water used will vary from area to area according to the amount of rainfall, soil type, crop requirements and efficiency of your water delivery and irrigation system; ditch loss, for example. Remember to consider these factors when claiming volume to insure sufficient water at the place of use. The last page of this booklet contains some guides that may be helpful to determine the volume of water you use.

12. PERIOD OF USE

"Period of use" for a water right is the period of time each year the water is used. Indicate the earliest month and day and the latest month and day the water has historically been used during any year. For example, your father has mentioned that one year he began irrigating on April 30. The latest the water was ever used was last year when you irrigated on October 15. You could then print on the claim form "April 30 to October 15."

13. CHECK ONE: TYPE OF RIGHT AND PRIORITY DATE OR DATE OF FIRST USE

Mark the box in front of the type of water right claimed. The types of water rights are:

DECREEED OR ADJUDICATED RIGHTS - water rights that have been reviewed and recognized by a court proceedings. These rights are on file at the County Clerk of Court's office.

FILED APPROPRIATION RIGHTS - water rights recorded on a "Notice of Appropriation" filed in the County Clerk and Recorder's office. This filing may have been done by any landowner.

USE RIGHTS - water rights developed by use; no record of the water right was ever made in the county courthouse.

A use right to surface water could have legally been established anytime before July 1, 1973 on un-adjudicated streams. A use right to groundwater could have legally been established before January 1, 1962. If a well or spring was developed after January 1, 1962, and was not recorded in the county courthouse, please refer to the SPECIAL NOTE ABOUT GROUNDWATER USE under Section II of the booklet.

Water rights in Montana are based on the doctrine of prior appropriation, or "first in time is first in right." *The priority date of a water right is extremely important.* The date you claim will help the courts determine your order of water-use in relation to other water-users.

For a decreed right, the priority date as found by the court should be entered in the priority date spaces. The priority date of some Notices of Appropriation is the date of "posting notice", if it appears on the filing. Most Notices of Appropriation actually support a use right with date of first use much earlier than the date the filing was made in the county courthouse. The priority date for all use rights is the earliest date of use that can be supported by the proof-of-use attachments.

14. ATTACH COPIES OF THE DECREE, RECORD OF FILING OR PROOF OF USE RIGHT

Documentation of the water right should be provided following these guidelines:

DECREED RIGHT - attach a copy of the portion of the decree describing the right. The copy can be obtained from the County Clerk of Court's office in the county of decree.

FILED APPROPRIATION RIGHT - attach a copy of the record of filing made in the County Clerk and Recorder's office. In most cases, filed rights are recorded under the name of the original appropriator in the county where the water is diverted. A deed or abstract may refer to the book and page number of the county record where the filing is found.

USE RIGHT - even though unrecorded, use water rights are valid if you can substantiate the date when the use began and the amount of water used. Proof-of-use documents may include water measurement records, a notarized statement of someone who knows when the use began (affidavits) or any similar attachment establishing a date and amount of first water use. It is advisable to attach any supporting evidence that can possibly be found.

15. ATTACH A CLEAR AND CONCISE MAP

A map must be attached with each claim form you file. Any map is acceptable as long as it is legible, accurate, and to scale. Possible maps are Water Resource Survey maps, U.S. Geological Survey

maps, Soil Conservation plan maps or aerial photographs.

The map must show and clearly label the following:

- * point of diversion. Briefly describe the means of diversion (i.e. headgate). If you have more than one point of diversion from the main source, indicate clearly on your map these different points. Also label the means of diversion at each point.
- * means of water conveyance (i.e. ditch, pipeline).
- * place of storage, if any (i.e. reservoir).
- * place of water use (area irrigated).
- * any other item that can be labeled which would further describe or identify the method of water use.
- * indicate clearly the sections, township and range associated with the areas on your map.
- * print the owner's name and address.

An example of a satisfactory map attachment is illustrated on the last page of this booklet.

16. NOTARIZED STATEMENT SIGNED BY CLAIMANT

To complete the claim form, it must be signed by at least one owner and witnessed by a licensed notary of any state.

STOCKWATER FORM INSTRUCTIONS

1. OWNER AND CO-OWNER

The actual owner of the water right should be printed here. If there is more than one owner, list only one name per line. For more than two names, use the Owner Name Addendum Sheet or list the additional owners and their addresses on an attached sheet of paper. The Owner Name Addendum Sheet is available from the County Clerk and Recorder's office. A permanent mailing address for receiving correspondence must be supplied for each owner and co-owner.

2. PERSON COMPLETING FORM

Fill in your name and mailing address here.

3. USE

Mark the box labeled "stockwater."

4. SOURCE OF WATER

Check only one source and print its name. If a source has more than one name, enclose the additional names in parenthesis. If no name exists, print "un-named". After naming the stream from which you use water, or the stream which supplies a lake or reservoir, you are asked to name the body of water to which the stream is a tributary. In other words, name the first down-stream body of water which receives the water from your source. **EXAMPLE:** The Yellowstone River is a tributary of the Missouri River because the Yellowstone River flows into the Missouri River.

5. POINT OF DIVERSION

"Point of diversion" refers to that point where the water is taken from the source for use. If you water stock from a well or developed spring, the point of diversion is the location of the well or spring. The point of diversion for a dam, pit or reservoir is the dam or pit location itself.

In cases where the stock drink directly from a stream, lake or river, the point of diversion is the location of the entire length of the stream bank or lake shore where the stock can drink. If the stock drink directly from an irrigation ditch, the point of diversion is the location where the ditch taps the source. Print the name of the county in which the diversion is made. Locate the point of diversion to a 10-acre area within the section. The last page of these instructions illustrates a section break-down that may be helpful. If the land has been subdivided, give the name of the lot, block and subdivision in addition to the section quarters, township and range. If your point of diversion is in a government lot, give the government lot number, section, township and range.

List only one point of diversion on each claim form. Describe additional points of diversion from the same water source on the Point of Diversion Addendum Sheet available from the County Clerk and Recorder's office, or on an attached sheet of paper.

6. MEANS OF DIVERSION

"Means of diversion" is how water is removed from the source.

- a) Pump - if a pump is used, mark the box and indicate the gallons per day pumped.
- b) Gravity Flow - gravity flow means natural flow, such as water collection at a spring box.
- c) Direct - direct diversion means that livestock drink directly from the water source.
- d) Other - any other means of diversion that may be used, such as a bucket or pail. Specify the means of diversion in the space provided.

After marking the appropriate box, indicate the maximum amount of water consumed in *gallons per day* by the maximum number of livestock that would be present at any one time during a year. Some standards for daily livestock consumption are listed on the last page of this booklet.

7. TOTAL NUMBER OF LIVESTOCK SERVED

Indicate the types and number of livestock in the proper spaces. Write the total number of *all* livestock served by the water right in the top line. Females and their offspring should be counted as one animal. Count weaned animals individually.

8. PLACE OF USE

The "place of use" is where the stock drink the water. This could be the location of the stock tank, pit, reservoir or other holding facility.

In cases where livestock drink directly from a stream, river or lake, the place of use would be identical to the point of diversion, i.e. the entire length of the stream, river or lake shore where the water is accessible to livestock. If livestock drink from ditches, the place of use would include the entire length of ditch where stock drink.

If additional spaces are needed to describe your place of use, list the additional land descriptions on the Place of Use Addendum Form available from the County Clerk and Recorder's office, or on a separate sheet of paper and attach it to the form.

9. FLOW RATE CLAIMED

This is the rate at which water is removed from the source for use. Water measurement methods can be expressed three ways: gallons per minute (GPM), cubic feet per second (CFS) and Montana miners inches (MI). You may wish to claim the flow rate given on your original water appropriation or decree. However, since actual measurement was rarely made by the original appropriators, these figures are often inaccurate. Actual flow measurement is always best. The water equivalents table on the back of this booklet may be helpful. A flow rate of 10 to 30 gallons per minute will satisfy most stock needs. If you are claiming a reservoir, the flow rate is the maximum rate water flows into the reservoir.

10. VOLUME CLAIMED

"Volume" is the total amount of water, in acre-feet, diverted each year to satisfy stock needs. The last page of this booklet contains some recommendations that may be helpful when determining volume for stock needs.

11. PERIOD OF USE

This is the period of time each year the water is used. Indicate the earliest month and day and the latest month and day the water has historically been used by livestock during any year. For example, if the water is needed during the entire year, print "January 1 to December 31" in the spaces.

12. CHECK ONE: TYPE OF RIGHT AND PRIORITY DATE OR DATE OF FIRST USE

Mark the box in front of the type of water right claimed. The types of water rights are:

DECREED OR ADJUDICATED RIGHTS - water rights that have been reviewed and recognized by a court proceedings. These rights are on file at the County Clerk of Court's office.

FILED APPROPRIATION RIGHTS - water rights recorded on a "Notice of Appropriation" filed in the County Clerk and Recorder's office. This filing may have been done by any landowner.

USE RIGHTS - water rights developed by use; no record of the water right was ever made in the county courthouse.

A use right to surface water could have legally been established anytime before July 1, 1973 on un-adjudicated streams. A use right to ground-water could have legally been established before January 1, 1962. If a well or spring was developed after January 1, 1962, and was not recorded in the county courthouse, please refer to the SPECIAL NOTE ABOUT GROUNDWATER USE under Section II of this booklet.

Water rights in Montana are based on the doctrine of prior appropriation, or "first in time is first in right." *The priority date of a water right is extremely important.* The date you claim will help the courts determine your order of water-use in relation to other water-users.

For a decreed right, the priority date as found by the court should be entered in the priority date spaces. The priority date of some Notices of Appropriation is the date of "posting notice", if it appears on the filing. Most Notices of Appropriation actually support a use right with a date of first use much earlier than the date the filing was made in the county courthouse. The priority date for all use rights is the earliest date of use that can be supported by the proof-of-use attachments.

13. ATTACH COPIES OF THE DECREE, RECORD OF FILING OR PROOF OF USE RIGHT

Documentation of the water right should be provided following these guidelines:

DECREED RIGHT - attach a copy of the portion of the decree describing the right. The copy can be obtained from the County Clerk of Court's office in the county of decree.

FILED APPROPRIATION RIGHT - attach a copy of the record of filing made in the County Clerk and Recorder's office. In most cases, filed rights are recorded under the name of the original appropriator in the county where the water is diverted. A deed or abstract may refer to the book and page number of the county record where the filing is found.

USE RIGHT - even though unrecorded, use water rights are valid if you can substantiate the date when the use began and the amount of water used. Proof-of-use documents may include water measurement records, a notarized statement of someone who knows when the use began (affidavits) or any similar attachment establishing a date and amount of first water use. It is advisable to attach any supporting evidence that can possibly be found.

14. ATTACH A CLEAR AND CONCISE MAP

A map must be attached with each claim form you file. Any map is acceptable as long as it is legible, accurate, and to scale. Possible maps are Water Resource Survey maps, U.S. Geological Survey maps, Soil Conservation plan maps or aerial photographs.

The map must show and clearly label the following:

- * point of diversion. Briefly describes the means of diversion (i.e. pump). This should include the entire area where stock can drink, if stock drink directly from the source.
- * means of water conveyance (i.e. ditch, pipeline).
- * place of storage, if any (i.e. reservoir).
- * place of water use (where stock drink).
- * any other items that can be labeled which would further describe or identify the water right.

- * indicate clearly the sections, township and range associated with the areas on your map.
- * print the owner's name and address.

An example of a satisfactory map attachment is illustrated on the last page of this booklet.

15. NOTARIZED STATEMENT SIGNED BY CLAIMANT

To complete the claim form, it must be signed by at least one owner and witnessed by a licensed notary of any state.

DOMESTIC FORM INSTRUCTIONS

1. OWNER AND CO-OWNER

The actual owner of the water right should be printed here. If there is more than one owner, list only one name per line. For more than two names, use the Owner Name Addendum Sheet available from the County Clerk and Recorder's office, or list the additional owners and their addresses on an attached sheet of paper. A permanent mailing address for receiving correspondence must be supplied for each owner and co-owner.

2. PERSON COMPLETING FORM

Fill in your name and mailing address here.

3. USE

Mark the box labeled "domestic."

4. SOURCE OF WATER

Check only one source and print its name. If a source has more than one name, enclose the additional names in parenthesis. If no name exists, print "unnamed". After naming the stream from which you use water, or the stream which supplies a lake or reservoir, you are asked to name the body of water to which the stream is a tributary. In other words, name the first down-stream body of water which receives the water from your source. **EXAMPLE:** The Yellowstone River is a tributary of the Missouri River because the Yellowstone River flows into the Missouri River.

5. POINT OF DIVERSION

"Point of diversion" refers to that point where the water is taken from its natural source for your use. The point of diversion is the actual location of the pipe, dam, pump or any diversion-means used to withdraw the water. Print the name of the county in which the diversion is made. Locate the point of diversion to a 10-acre area within the section. The last page of these instructions illustrates a section break-down that may be helpful. If the land has been subdivided, give the

name of the lot, block and subdivision in addition to the section quarters, township and range. If your point of diversion is in a government lot, give the government lot number, section, township and range.

6. MEANS OF DIVERSION

The "means of diversion" is how the water is taken from the natural source. Select the type of diversion used and mark the proper box. You may check one or more boxes. If a pump is used, indicate the pump capacity in gallons per minute.

7. PLACE OF USE AND ACRES IRRIGATED

The "place of use" for domestic water claims is generally the location of the home, lawn and garden. Indicate the approximate acreage of lawn and garden. If you don't water a lawn or garden, print "0" acres and describe the location of the house. If you live in a subdivision and have your own individual water supply, complete the blanks describing lot, block and subdivision.

8. NUMBER OF PERSONS SERVED

Claim the maximum number of persons ever to live in the house on a regular basis.

9. FLOW RATE CLAIMED

This is the rate at which you take water from the source for use. Water measurement methods can be expressed three ways: gallons per minute (GPM), cubic feet per second (CFS) and Montana miners inches (MI). Actual flow measurement is always best. However, most domestic wells discharge between 5 and 30 gallons per minute. The water equivalents table on the back of this booklet may be helpful. If you are claiming a reservoir, the flow rate is the maximum rate water flows into the reservoir.

10. VOLUME CLAIMED

The "volume claimed" is the total amount of water, in acre-feet, consumed in a year. A common standard of use for domestic purposes is listed on the last page. Any recommended standard of use should be adjusted depending on your individual situation.

11. PERIOD OF USE

This is the period of time each year the water is used. Indicate the earliest month and day and the latest month and day the water has historically been used during any year. For example, if the water is needed during the entire year, print "January 1 to December 31."

12. CHECK ONE: TYPE OF RIGHT AND PRIORITY DATE OR DATE OF FIRST USE

Mark the box in front of the type of water right claimed. The types of water rights are:

DECREED OR ADJUDICATED RIGHTS - water rights that have been reviewed and recognized by a court proceedings. These rights are on file at the County Clerk of Court's office.

FILED APPROPRIATION RIGHTS - water rights recorded on a "Notice of Appropriation" filed in the County Clerk and Recorder's office. This filing may have been done by any previous landowner.

USE RIGHTS - water rights developed by use; no record of the water rights was ever made in the county courthouse.

A use right to surface water could have legally been established anytime before July 1, 1973 on unadjudicated streams. A use right to groundwater could have legally been established before January 1, 1962. If a well or spring was developed after January 1, 1962, and was not recorded in the county courthouse, please refer to the SPECIAL NOTE ABOUT GROUNDWATER USE under Section II of this booklet.

Water rights in Montana are based on the doctrine of prior appropriation, or "first in time is first in right." *The priority date of a water right is extremely important.* The date you claim will help the courts determine your order of water-use in relation to other water-users.

For a decreed right, the priority date as found by the court should be entered in the priority date

spaces. The priority date of some Notices of Appropriation is the date of "posting notice", if it appears on the filing. Most Notices of Appropriation actually support a use right with a date of first use much earlier than the date the filing was made in the county courthouse. The priority date for all use rights is the earliest date of use that can be supported by the proof-of-use attachments.

13. ATTACH COPIES OF THE DECREE, RECORD OF FILING OR PROOF OF USE RIGHT.

Documentation of the water right should be provided following these guidelines:

DECREED RIGHT - attach a copy of the portion of the decree describing the right. The copy can be obtained from the County Clerk of Court's office in the county of decree.

FILED APPROPRIATION RIGHT - attach a copy of the record of filing made in the County Clerk and Recorder's office. In most cases, filed rights are recorded under the name of the original appropriator in the county where the water is diverted. A deed or abstract may refer to the book and page number of the county record where the filing is found.

USE RIGHT - even though unrecorded, use water rights are valid if you can substantiate the date when the use began and the amount of water used. Proof-of-use documents may include water measurement records, affidavits or any similar attachment establishing a date and amount of first water use. It is advisable to attach any supporting evidence that can possibly be found.

14. ATTACH A CLEAR AND CONCISE MAP.

A map must be attached with each claim form you file. Any map is acceptable as long as it is legible, accurate and to scale. Possible maps are U.S. Geological Survey maps, subdivision plat maps or aerial photographs.

The map must show clearly and label the following:

- * point of diversion. Briefly describe the means of diversion, such as "pump."
- * any means of water conveyance (i.e. "pipeline").

- * place of storage (if any).
- * place of water use (house, lawn and garden).
- * any other items that can be labeled which would further describe or identify the water right.
- * indicate clearly the sections, township and range associated with the areas on your map.
- * print the owner's name and address.

An example of a satisfactory map attachment is illustrated on the last page of this booklet.

15. NOTARIZED STATEMENT SIGNED BY CLAIMANT

To complete the claim form, it must be signed by at least one owner and witnessed by a licensed notary of any state.

OTHER USES FORM INSTRUCTIONS

1. OWNER AND CO-OWNER

The actual owner of the water right should be printed here. If there is more than one owner, list only one name per line. For more than two names, use the Owner Name Addendum Sheet which is available from the County Clerk and Recorder's office, or list the additional owners and their addresses on an attached sheet of paper. A permanent mailing address for receiving correspondence must be supplied for each owner and co-owner.

2. PERSON COMPLETING FORM

Fill in your name and mailing address here.

3. USE

Only one use can be claimed on each form. Mark the box which describes your particular use of the water right. If none of the categories on the form reflect your use, check the box "other" and briefly describe the use in the space.

4. SOURCE OF WATER

Check only one source and print its name. If a source has more than one name, enclose the additional names in parenthesis. If no name exists, print "un-named". After naming the stream from which you use water, or the stream which supplies a lake or reservoir, you are asked to name the body of water to which the stream is a tributary. In other words, name the first down-stream body of water which receives the water from your source. **EXAMPLE:** The Yellowstone River is a tributary of the Missouri River because the Yellowstone River flows into the Missouri River.

5. POINT OF DIVERSION

"Point of diversion" refers to the point where the water is taken from its natural source for your use. "Point of diversion" means the actual location of water withdrawal of the headgate, dike, pipe, dam or pump. The point of diversion for offstream reservoirs is the point water is diverted from the stream to be taken to the reservoir. Print the name of the county in which the diversion is made. Locate the point of diversion to a 10-acre area within the section. The last page of these instructions illustrates a section break-down that may be helpful. If the land has been subdivided, give the name of the lot, block and subdivision in addition to the section, township and range. If your point of diversion is in a government lot, write in government lot number, section, township and range. 1 range.

List only one point of diversion on each claim form. Describe additional points of diversion from the same water source on the Point of Diversion Addendum Sheet available from the County Clerk and Recorder's office, or on an attached sheet of paper.

6. MEANS OF DIVERSION

The "means of diversion" is how the water is taken from the natural source. Select the type of diversion used and mark the proper box. You may check one or more boxes. If a pump is used, indicate the pump capacity in gallons per minute.

7. MEANS OF CONVEYANCE

"Means of conveyance" is how water is transported from the point of diversion to the area of use. You may check more than one box.

8. PLACE OF USE

First indicate the county where the water is actually put to use. Mark the box that describes the use:

- a) Instream (no diversion involved)
- b) City or Town (municipal water system, etc.)
- c) Other (any other place of use, briefly describe)

Print the name of the county where the water is used. Locate this area to the appropriate quarter section and indicate the section, township and range on the form. If additional space is needed list these descriptions on the Place of Use Addendum Sheet available from the County Clerk and Recorder's office, or on an attached sheet of paper.

9. FLOW RATE CLAIMED

This is the rate at which you take water from the source for use. Water measurement methods can be expressed three ways: gallons per minute (GPM), cubic feet per second (CFS) and Montana miners inches (MI). You may wish to claim the flow rate given on your original water appropriation or decree. However, since actual measurement was rarely made by the original appropriators, these figures are often inaccurate. Actual flow measurement is always best. The water equivalents table on the back of this booklet may be helpful. If you are claiming a reservoir, the flow rate is the maximum rate recharge water flows into the reservoir.

10. VOLUME CLAIMED

"Volume" is the total amount of water needed each year to satisfy the use. Volume is expressed in acre-feet. The last page of this booklet contains a water equivalents table that may be helpful.

11. PERIOD OF USE

"Period of use" for a water right is the period of time each year the water is used. Indicate the earliest month and day and latest month and day the water has historically been used in any year.

12. CHECK ONE: TYPE OF RIGHT AND PRIORITY DATE OR DATE OF FIRST USE

Mark the box in front of the type of water right claimed. The types of water rights are:

DECREE OR ADJUDICATED RIGHTS - water rights that have been reviewed and recognized by a court proceedings. These rights are on file at the County Clerk of Court's office.

FILED APPROPRIATION RIGHTS - water rights recorded on a "Notice of Appropriation" filed in the County Clerk and Recorder's office. This filing may have been done by any previous landowners.

USE RIGHTS - water rights developed by use; no record of the water right was ever made in the county courthouse.

A use right to surface water could have legally been established anytime before July 1, 1973 on unadjudicated streams. A use right to groundwater could have legally been established before January 1, 1962. If a well or spring was developed after January 1, 1962, and was not recorded in the county courthouse, please refer to the SPECIAL NOTE ABOUT GROUNDWATER USE under Section II of this booklet.

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For a decreed right, the priority date as found by the court should be entered in the priority date spaces. The priority date of some Notices of Appropriation is the date of "posting notice", if it appears on the filing. Most Notices of Appropriation actually support a use right with a date of first use much earlier than the date the filing was made in the county courthouse. The priority date for all use rights is the earliest date of use that can be supported by the proof-of-use attachments.

13. ATTACH COPIES OF THE DECREE, RECORD OF FILING OR PROOF OF USE RIGHT

Documentation of the water right should be provided following these guidelines:

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FILED APPROPRIATION RIGHT - attach a copy of the record of filing made in the County Clerk and Recorder's office. In most cases, filed rights are recorded under the name of the original appropriator in the county where the water is diverted. A deed or abstract may refer to the book and page number of the county record where the filing is found.

USE RIGHT - even though unrecorded, use water rights are valid if you can substantiate the date when the use began and the amount of water used. Proof-of-use documents may include water measurement records, affidavits or any similar attachment establishing a date and amount of first water use. It is advisable to attach any supporting evidence that can possibly be found.

14. ATTACH A CLEAR AND CONCISE MAP

A map must be attached with each claim form you file. Any map is acceptable as long as it is legible, accurate, and to scale. Possible maps are Water Resource Survey maps, U.S. Geological Survey maps, subdivision plat maps or aerial photographs.

The map must show and clearly label the following:

- * point of diversion. Briefly describe the means of diversion (i.e. pump). If you have more than one point of diversion from the main source, indicate clearly on your map these different points. Also label the means of diversion at each point.

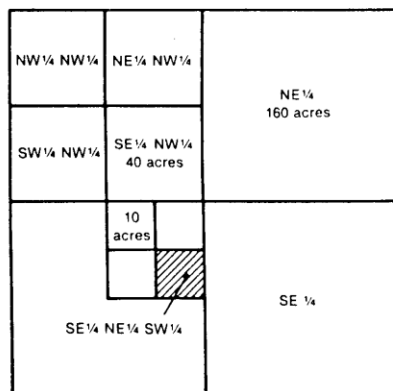
- * means of water conveyance (i.e. ditch, pipeline).
- * place of storage, if any (i.e. reservoir).
- * place of water use.
- * any other items that can be labeled which would further describe or identify the method of water use.
- * indicate clearly the sections, township, and range associated with the areas on your map.
- * print the owner's name and address.

An example of a satisfactory map attachment is illustrated on the last page of this booklet.

15. NOTARIZED STATEMENT SIGNED BY CLAIMANT

To complete the claim form, it must be signed by at least one owner and witnessed by a licensed notary of any state.

LEGAL LAND DESCRIPTION



EXAMPLE: Section 1, Township 3 North, Range 6 West

Standard Section	= 640 acres
1/4 section	= 160 acres
1/4 of 1/4 section	= 40 acres
1/4 of 1/4 of 1/4 section	= 10 acres

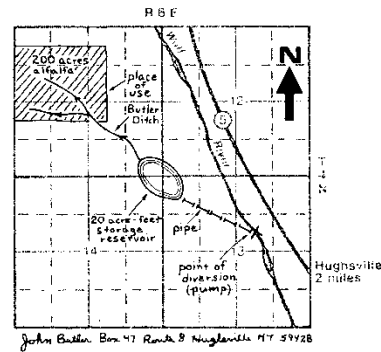
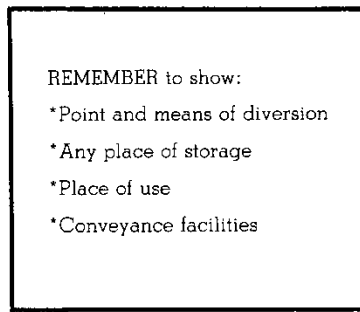
To describe any point in a section, the section is first divided into quarters of 160 acres. A quarter is described as being either the northeast (NE), northwest (NW), southeast (SE), or southwest (SW) quarter of the section. For a more precise location, the quarters can be divided in a like manner to 40-acre quarters. To further describe a location, the 40-acre quarters can be similarly divided to 10-acre quarters.

The legal description of a parcel of land, when written, always begins with the *smallest* division and then proceeds to the *largest* division. For example, the smallest parcel shown in the illustration of Section 1 in Township 3N, Range 6, would be legally described as:

"The SE 1/4 NE 1/4 SW 1/4, Section 1, Township 3N, Range 6W".

If you want to describe a location that covers a large area, such as a stream or lake, the section may be divided in half and described as either N 1/2, S 1/2, W 1/2, or E 1/2 of the section. A larger location may simply be described by the section number.

ATTACH A CLEAR AND CONCISE MAP



WATER MEASUREMENT

FLOW RATE

Flow rate can be expressed in cubic feet per second (CFS), gallons per minute (GPM) and miners inches (MI).

1 CFS = 450 GPM

1 CFS = 40 MI

1 CFS = 646,272 gallons per day.

IRRIGATION

Determination of flow rate for irrigation systems should be made *at the point of diversion from the water source*. Many irrigation wells were recorded at the county court house upon completion, and may give you clues to the yield measured by the driller or original owner. Filed appropriations, also recorded at the county courthouse, may give you some idea as to the amount of flow of the original appropriation. Pump or equipment specifications may list a discharge rate. Assistance with selection and use of measuring equipment can be obtained from private agricultural consulting firms or equipment manufacturing representatives.

STOCKWATER

For stockwater requirements, most small wells discharge between 5 and 30 gallons per minute, which is usually sufficient for most stock needs.

Discharge of springs may have to be measured or estimated to claim sufficient flow for stock use. A flow rate for livestock drinking direct from the creek,

spring or ditch may be difficult to measure, but most rates will range from 10 to 30 gallons per minute. For ponds or reservoirs, flow rate is expressed as the maximum rate water flows into the pond or reservoir. If the volume or capacity of the reservoir is known, as well as the approximate days required to fill the reservoir, an approximate flow rate can be found as follows:

Reservoir capacity (acre-feet) ÷ days to fill × .5 = flow rate in CFS

DOMESTIC

A domestic well will typically discharge between 5 and 30 gallons per minute.

VOLUME

IRRIGATION

The following formulas will help determine a yearly volume if you first determine the *actual flow rate* and the *number of 24 hour-periods (days) water is actually diverted*.

For a flow rate expressed in cubic feet per second (CFS):

CFS × days × 2 = acre-feet.

For a flow rate expressed in gallons per minute (GPM):

GPM × days ÷ 225 = acre-feet.

For a flow rate expressed in miners inches (MI):

MI × days ÷ 20 = acre-feet.

STOCKWATER

For range cattle and horses, the annual water requirement from wells, springs, streams and ditches can be determined from these formulas:

WELLS or SPRINGS

Number of head \times months served \times .0014 = acre-feet.

STREAMS and DITCHES

Number of head \times months served \times .0028 = acre-feet.

Either formula may be used for milk cows, hogs, or sheep with one additional step:

Milk Cows - multiply by 2

Hogs - divide by 3

Sheep - divide by 5

PONDS AND RESERVOIRS

The volume of ponds, lakes or reservoirs (generally less than 50 acre feet capacity) can be calculated using this formula:

ACRE-FEET = Surface Area (acres) \times Maximum Depth (feet) \times 0.4

Multiply the formula by the number of times the reservoir is completely used and refills in a year of maximum use.

AVERAGE LIVESTOCK WATER REQUIREMENTS

Some average water requirements for use throughout the year are listed below. Actual daily requirements depend on air temperature, type of feed, activity, etc.

15 gallons per day each horse, dry cow, steer

30 gallons per day each milk cow

5 gallons per day each hog

3 gallons per day each sheep

DOMESTIC VOLUME REQUIREMENTS

The yearly volume of water you use for domestic purposes can best be estimated by using the following standard:

Family of Five	1.0 Acre-Foot/Year
¼ Acre Lawn and Garden	.5 Acre-Foot/Year
Total Volume Used	1.5 Acre-Foot/Year

DNRC WATER RIGHTS FIELD OFFICES

1537 Avenue D
Suite 121
Billings, MT 59102
(Phone 248-6540)

3220 Highway 93 South
P.O. Box 860
Kalispell, MT 59901
(Phone 755-9288)

613 Northeast Main St.
P.O. Box 438
Lewistown, MT 59457
(Phone 538-7459)

28 South Rodney
Helena, MT 59620
(Phone 449-3634)

Old Highway 2
P.O. Box 1828
Havre, MT 59501
(Phone 265-5516)

110 Fifth Street So.
Room 118
P.O. Box 894
Glasgow, MT 59230
(Phone 228-2561)

2101 Bow Street
P.O. Box 5004
Missoula, MT 59806
(Phone 721-4284)

5 North Prairie
P.O. Box 276
Miles City, MT 59301
(Phone 232-6359)

Professional Building
Suite 1-D
Corner Black & Olive
Bozeman, MT 59715
(Phone 586-3136)

EXHIBIT III-1

STANDARD ABBREVIATIONS

Measurement Abbreviations

AF	Acre-foot or acre-feet
AF/A	Acre-feet per acre
CFS	Cubic feet per second
FT	foot (feet)
GPD	Gallons per day
GPM	Gallons per minute
GPM/AC	Gallons per minute per acre
HT	Height
IN	Inches
MI	Miners Inch

Agency Abbreviations

ASCS	Agriculture Stabilization and Conservation Service (USDA)
BIA	Bureau of Indian Affairs (USDI)
BLM	Bureau of Land Management (USDI)
BOR	Bureau of Reclamation (USDI)
DFWP	Department of Fish Wildlife and Parks
DNRC	Department of Natural Resources and Conservation
EPA	Environmental Protection Agency
FS	Forest Service (USDA)
GLO	General Land Office
NPS	National Park Service (USDI)
NRCS	Natural Resources and Conservation Service
RWRCC	Reserved Water Rights Compact Commission
SCS	Soil Conservation Service (USDA)
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USGS	United States Geological Survey
WC	Water Court
YRCC	Yellowstone River Compact Commission

Other Abbreviations

COS	Certificate of Survey
Cp	Claimant contact point
DLC	Desert Land Claims
e.g.	for example

EXHIBIT III-1 (cont.)

Gen	Generate
GW	Groundwater
HES	Homestead Entry Survey
HP	Horsepower
i.e.	that is
ID	Identification
Lbry	Library
MCA	Montana Codes Annotated
MM/DD/YYYY	Month, day, and year
No.	Number
Ownr	Owner
POD	Point of diversion
POU	Place of use
PRCL	Parcel
Purp	Purpose
PVC	Polyvinyl chloride (plastic)
QTR SEC	Quarter section
Quad	Quadrangle
RCM	Revised Codes of Montana
RGE	Range
RO	Regional Office/Unit Office
SB	Senate Bill
SB76	Senate Bill 76
SEC	Section
Trl	Trailer
TRS	Township, Range, Section
TWP	Township
U	Use Right
UT	Unnamed Tributary
WRS	Water Resources Survey

Owner Name and Address Abbreviations

See Exhibit IV-6, "Owner Name/Address Standards"

EXHIBIT III-3

DISTRICT COURT DECREE INDEX

Case No.	Original Appropriator	Source	Priority Date	Flow Rate Filed	Statement of Claims

EXHIBIT III-4

SYNOPSIS OF ADJUDICATION PROGRESS FOR BASIN

Regional/Unit Office or Adjudication Team: _____ Date: _____

1. Begin examination: _____
2. Examination completed: _____
3. Summary Preparation completed by department: _____
4. Draft Summary Report reviewed by department: _____
5. Summary Report issued: _____
6. Summary Report corrections completed: _____
7. Temporary preliminary decree issued: _____
8. Objection deadline: _____
9. Extension for objections: _____
10. Counterobjection deadline: _____
11. Preliminary decree: _____
12. Objection deadline: _____
13. Extension for objections: _____
14. Counterobjection deadline: _____
15. Final decree issued: _____

Comments:

Personnel involved in examination:

EXHIBIT III-5

AERIAL PHOTO INFORMATION


Form 441 is available at: http://www.fsa.usda.gov/Internet/FSA_File/fsa0441_10302007.pdf

This form is available electronically. Form Approved - OMB No. 0590-0178

FSA-441 U.S. DEPARTMENT OF AGRICULTURE
(10-30-07) **FARM SERVICE AGENCY**

REQUEST FOR AERIAL PHOTOGRAPHY

See Page 2 for Privacy Act and Public Garden Statements

1. NAME		
2. ADDRESS (STREET ADDRESS)		
3. ADDRESS (PO BOX)		
4. CITY, STATE, ZIP+4		
5. CONTACT NAME		
6. TELEPHONE NUMBER () ()	7. FAX NUMBER () ()	
8. E-MAIL ADDRESS		
9. IF KNOWN:	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">A. CUSTOMER CODE</div> <div style="width: 45%;">B. AGENCY CODE</div> </div> <div style="border-top: 1px solid black; padding-top: 2px;">C. PURCHASE ORDER (PO) NUMBER</div>	

10. CREDIT CARD NUMBER		11. EXP. DATE (MM/YY)	
12. TOTAL REPRODUCTIONS		13. AMOUNT REMITTED / PO AMOUNT \$	

IMAGERY DATA SECTION (See Page 2 for Ordering Information)

14. STATE OR REGION	15. SPECIAL INSTRUCTIONS 16. COUNTY (OR FOREST AREA)
17. IMAGERY IDENTIFICATION	

DIGITAL REPRODUCTIONS	QUAN. EACH	YEAR	PROGRAM SYMBOL	RES. ROLL NO.	QUARTER QUAD NAME/NO. EXPOSURE(S) (RANGE(S))	18. AREA OR LOCATION DESCRIPTIONS
FILM SIZE AND TYPE REPRODUCTIONS						
						Include information in boxes below or item 15 above. <ul style="list-style-type: none"> Latitude / Longitude - point and radius or four corner points Legal Description - Township, Range, Section(s) Map - Detailed topographic, county, or city map outlining your area of interest as accurately as possible. - attach to form or email to address below. Electronic shapefiles with projection. - attach to email address below.

Address Order for Photography or Information:	CUSTOMER SERVICE SECTION USDA FSA AERIAL PHOTOGRAPHY FIELD OFFICE 2222 WEST 2300 SOUTH SALT LAKE CITY UT 84119-2020	TELEPHONE: 801-844-2922 FAX: 801-956-3653 E-MAIL: apfo.sales@sic.usda.gov WEBSITE: http://www.apfo.usda.gov
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The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable sex, marital status, familial status, parental status, religion, sexual orientation, gender identity, political beliefs, marital or financial status, or because all or part of an individual's income is derived from any public assistance program. (This all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-4410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

EXHIBIT III-5 (cont.)

Form 441 (cont.)

ORDERING INFORMATION

FSA-441 (Page 2) (10-30-07)

The form is titled 'REQUEST FOR AERIAL PHOTOGRAPHY' and includes sections for 'CUSTOMER INFORMATION', 'PRODUCT SPECIFICATIONS', and 'SPECIAL INSTRUCTIONS'. It features a large grid for product specifications and a section for special instructions. The form is labeled with 'APFO' and 'FSA-441'.

- A** Your customer information - please include your street address (Item 2) and telephone number (Item 6). If you are a tax-supported organization and want to be billed, place your purchase order number here (Item 9C).
- B** Total reproductions (Item 12) - In this area indicate the total number of reproductions by product (i.e. 1-24x24, 2-36x38).
- Amount remitted/PO amount (Item 13) - by check, money order or Credit Card (Item 10).
- C** Special instructions (Item 15) - provide any special instructions you require of us to process your order. Include area or location description here.
- Digital reproductions, film size and type reproductions (Item 17A) - refer to Prices for Aerial Photographic Reproductions (FSA-441A).
- Program or symbol (Item 17D) - you may know it as project code (ID), FIPB codes, etc.
- Resolution (Res.) or film roll number (Item 17E) - resolution of digital imagery or a unique number related to a specific project.
- Quarter Quad Name / No. or Exposure(s) (range(s)) (Item 17F) - Indicate quarter quad name or number or the film exposure number or range of exposures here. Refer to FSA-441A (Page 2).
- D** Instructions - these are brief instructions related to your order. See "HOW TO ORDER AERIAL PHOTOGRAPHY" below. Also, see FSA-441A.
- E** U.S. Government Agency Use Only - this may substitute for your purchase order. For FSA orders, your signature is required.
- F** Preferred types of area or location descriptions (Item 18).

* HOW TO ORDER AERIAL PHOTOGRAPHY

Fill out items 14 through 18 on the FSA-441, Request for Aerial Photography form. If you do not have the aerial photo identification numbers, furnish one or more of the following forms of information and we will make print selections for you:

- Latitude and Longitude coordinates (point and radius or four corner points.)
- Legal description of your area of interest in township, range, and section number.
- A topographic, county, or city map outlining your area of interest as accurately as possible.
- Electronic shapefiles with projection.

Products are made after an order and payment is received. You may order over the telephone using a major credit card if you have complete aerial photo (symbol, roll, exposure) or quarter quad identification.

* APFO PRODUCTS AND SERVICES

Depending on the original film scale or digital resolution, photographs are available in selected scales ranging from 1 inch = 5,000 feet to 1 inch = 200 feet. Paper sizes: 10"x10" contact prints, 12"x12" to 38"x38" enlargements. Digital scans from film (10"x10") are available in TIF format. Digital Compressed County Mosaics (CCM) and Quarter Quads (QQ). See FSA-441A (Prices for Aerial Photographic Reproductions) for specific size and scale availability. For special needs not covered elsewhere on this form, contact us directly. Additional fees may apply.

* OTHER PHOTOGRAPHY

Photography secured for the Forest Service (FS) and National Resource Conservation Service (NRCS) can be purchased from us by the same procedures outlined for FSA photography. The negative scales vary from 1:6,000 to 1:80,000, depending on the project area. Most FS photography has been flown in natural color, some in black and white and color infrared. Most NRCS photography has been flown in black and white, some in natural color and color infrared.

NOTE: The following statement is made in accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, as amended. The Farm Service Agency, Aerial Photography Field Office is an Agency of the Department of Agriculture and is authorized to coordinate aerial photography programs and operations under Section 387 of the Agricultural Adjustment Act of 1933 (7 USC 1387). The requested information on this form will be used to process aerial photography orders as specified. Furnishing the requested information is strictly voluntary; however, orders may not be processed if information is incomplete. This information may be provided: 1) to the appropriate agency, whether Federal, State, local, or foreign, charged with the responsibility of investigating or prosecuting a violation of law, or of enforcing or implementing a statute, rule, regulation or order issued pursuant thereto, of any records within this system when information available indicates a violation or potential violation of law, whether civil, criminal or regulatory in nature and whether arising by general statute or particular program statute, or by rule, regulation or order issued pursuant thereto; 2) to a court, magistrate, or administrative tribunal, or to opposing counsel in a proceeding before any of the above, of any record within the system which constitutes evidence in that proceeding, or which is sought in the course of discovery to the extent that records sought are relevant to the subject of the proceeding.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0560-0176. The time required to complete this information collection is estimated to average 40 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. RETURN THIS COMPLETED FORM TO THE USDA FSA AERIAL PHOTOGRAPHY FIELD OFFICE AT THE ADDRESS LISTED ON PAGE 1.

EXHIBIT III-5 (cont.)

Form 441A is available at: http://www.fsa.usda.gov/Internet/FSA_File/fsa0441a_10302007.pdf

This form is available electronically.

FSA-441A
(10-30-07)

U.S. DEPARTMENT OF AGRICULTURE
Farm Service Agency

PRICES FOR AERIAL PHOTOGRAPHIC REPRODUCTIONS

Prices Effective January 1, 2008

Prices are subject to change. Prices listed are for items most frequently requested.

IMAGE SIZE	PRODUCT MATERIAL	PRICES	FILE SIZE RANGE	MEDIA	PRICES	FILE SIZE RANGE	MEDIA	PRICES
BLACK & WHITE NEGATIVE PHOTOGRAPHY (BW)			COMPRESSED COUNTY MOSAIC (CCM) AND QUARTER QUAD (QQ) DIGITAL IMAGERY					
10" x 10"	Paper Print	\$13.00	Up to 700 mb	CD	\$ 18.00	12.1 gb to 13.0 gb	DVD	\$ 140.00
10" x 10"	Film Positive*	\$13.00	701 mb to 800 mb	DVD	\$ 19.00	13.1 gb to 14.0 gb	DVD	\$ 149.00
10" x 10"	Film Negative	\$13.00	801 mb to 900 mb	DVD	\$ 19.00	14.1 gb to 15.0 gb	DVD	\$ 160.00
10" x 10"	Film Internegative	\$13.00	901 mb to 1.0 gb	DVD	\$ 20.00	15.1 gb to 16.0 gb	DVD	\$ 177.00
10" x 10"	Film Scan **	\$13.00	1.1 gb to 2.0 gb	DVD	\$ 29.00	16.1 gb to 17.0 gb	DVD	\$ 186.00
12" x 12"	Paper Print	\$20.00	2.1 gb to 3.0 gb	DVD	\$ 46.00	17.1 gb to 18.8 gb	DVD	\$ 202.00
17" x 17"	Paper Print	\$26.00	3.1 gb to 4.0 gb	DVD	\$ 55.00	18.9 gb to 40.0 gb***	80gb HD	\$ 442.00
24" x 24"	Paper Print	\$36.00	4.1 gb to 5.0 gb	DVD	\$ 66.00	40.1 gb to 60.0 gb***	80gb HD	\$ 622.00
38" x 38"	Paper Print	\$58.00	5.1 gb to 6.0 gb	DVD	\$ 75.00	60.1 gb to 80.0 gb***	80gb HD	\$ 810.00
COLOR AND COLOR INFRARED POSITIVE PHOTOGRAPHY (CP/CIRP)			6.1 gb to 7.0 gb	DVD	\$ 84.00	80.1 gb to 120.0 gb***	120gb HD	\$ 1,182.00
10" x 10"	Film Positive*	\$13.00	7.1 gb to 8.0 gb	DVD	\$ 93.00	120.1 gb to 160.0 gb***	160gb HD	\$ 1,553.00
10" x 10"	Film Scan**	\$13.00	8.1 gb to 9.0 gb	DVD	\$ 102.00	160.1 gb to 250.0 gb***	250gb HD	\$ 2,385.00
COLOR NEGATIVE PHOTOGRAPHY (CN)			9.1 gb to 10.0 gb	DVD	\$ 113.00	250.1 gb to 320.0 gb***	320gb HD	\$ 3,040.00
10" x 10"	Paper Print	\$13.00	10.1 gb to 11.0 gb	DVD	\$ 122.00	320.1 gb to 400.0 gb***	400gb HD	\$ 3,814.00
10" x 10"	Film Positive*	\$13.00	11.1 gb to 12.0 gb	DVD	\$ 131.00	400.1 gb to 500.0 gb***	500gb HD	\$ 4,767.00
10" x 10"	Film Scan**	\$13.00	CD = Compact Disc DVD= Digital Versatile Disc HD = Hard Drive (external)					
24" x 24"	Paper Print	\$36.00	Average File Sizes: 1m Quarter Quad = 145 mb / 2m Quarter Quad = 45 mb					
38" x 38"	Paper Print	\$58.00	2003 to 2004 CCM = 600 mb / 2004 to Present CCM = 2.3 gb					
COLOR AND COLOR INFRARED DIGITAL PHOTOGRAPHY			Average County QQ Count = 70 MEDIA included with price of product.					
10" x 10"	Digital Paper Print	\$15.00	*** Total File sizes between 18.9 gb and 500 gb may be provided on the most current hard drive(s) available.					
20" x 20"	Digital Paper Print	\$36.00						
24" x 24"	Digital Paper Print	\$44.00						
30" x 30"	Digital Paper Print	\$57.00						
ORDERING INFORMATION								
PRODUCT TYPE Designate the type of product. For example: 24" x 24" B&W Paper Print 10" x 10" CIR Film Positive 38" x 38" Color Paper Print Compressed County Mosaic Quarter Quad			PAYMENT		Prepayment is required. We accept Credit Cards. Make checks or money orders payable to: USDA FSA. Purchase orders are accepted from tax-supported agencies. No COD's.			
			SHIPMENT		We ship the most economical method. No COD's. Shipping costs are included in the price of the product.			

* **Transparencies** - A clear-based film product made visible by projecting light through the product material. Also known as diapositive.

** **Film Scans** - Standard resolution at 25 microns (1016 dpi) in tagged image file format (tiff).

For special needs not covered elsewhere on this form, contact us directly. Additional fees may apply.

Address Order for	CUSTOMER SERVICE SECTION	TELEPHONE:	801-844-2922
Photography or	USDA FSA AERIAL PHOTOGRAPHY FIELD OFFICE	FAX:	801-958-3853
Information to:	2222 WEST 2300 SOUTH	E-MAIL:	apfo.sales@sic.usda.gov
	SALT LAKE CITY UT 84119-2020	WEBSITE:	http://www.apfo.usda.gov

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (800) 725-2860 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 725-6882 (TDD). USDA is an equal opportunity provider and employer.

EXHIBIT III-5 (cont.)

Form 441A (cont.)

FSA-441A (Page 2) (10-30-07)

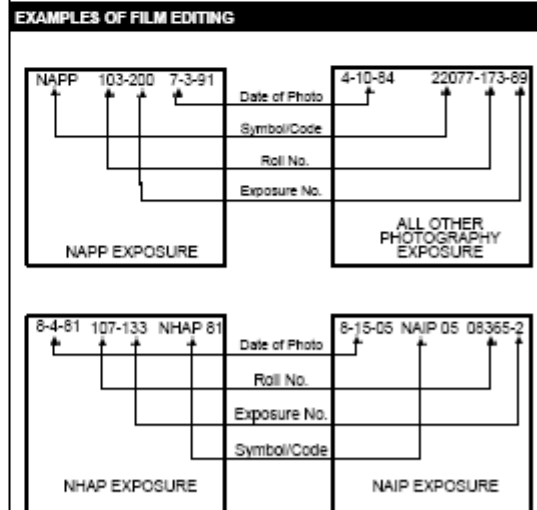
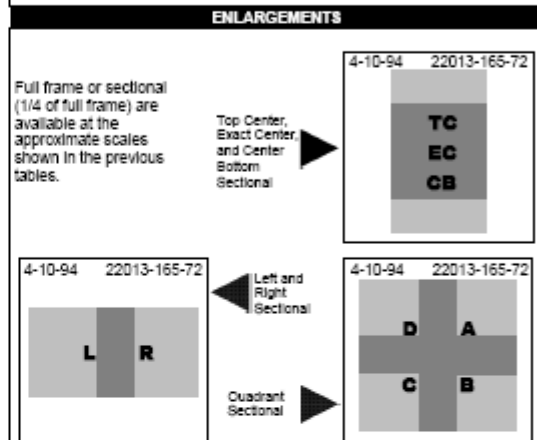
PROGRAM AVAILABILITY			
PROGRAMS	SCALE OF PHOTOGRAPHY	DATE RANGE	TYPE OF PHOTOGRAPHY
NAIP	1:40,000 - 1:60,000	2003 - Present	Color and Color IR Pos.
NAPP	1:40,000	1987 - 2006	B&W Negative / **Color IR Pos.
NHAP	1:60,000	1980 - 1987	**Color IR Pos.
FSA & NRCIS	1:40,000	1970 - Present	B&W Negative
FSA & NRCIS	1:20,000	1955 - 1970	B&W Negative
FS	Various	1955 - Present	B&W and **Color Negative Color IR Pos., and Misc.

FILM SCALES AND PRODUCT SIZES					
Enlargements produced from Negatives - B&W/air sizes, Color/24" and 35" only					
SIZE (INCHES)	DIAMETER OF ENLARGEMENT	APPROX. FEET PER INCH FROM			PRICE \$
		1:20,000	1:40,000	1:60,000	
12 x 12 Full Frame	1.25x	1"=1320'	1"=2640'	1"=4000'	20.00
12 x 12 Sectional	2.53x	1"=660'	1"=1320'	1"=2000'	20.00
17 x 17 Full Frame	1.66x	1"=1000'	1"=2000'	1"=3000'	26.00
17x 17 Sectional	3.33x	1"=500'	1"=1000'	1"=1500'	26.00
24 x 24 Full Frame	2.53x	1"=660'	1"=1320'	1"=2000'	36.00
24 x 24 Sectional	5.05x	1"=330'	1"=660'	1"=1000'	36.00
36 x 36 Full Frame	4.15x	1"=400'	1"=800'	1"=1320'	58.00
36 x 36 Sectional	8.33x	1"=200'	1"=400'	1"=660'	58.00

DIGITAL SCALES AND PRODUCT SIZES				
Enlargements produced from Color or Color Infrared Positive FILM SCANS:				
SIZE (INCHES)	DIAMETER OF ENLARGEMENT	APPROX. FEET PER INCH FROM		PRICE \$
		1:40,000	1:60,000	
20x20 Full Frame	2.0X	1"=1667'	1"=2500'	36.00
20x20 Sectional	4.0X	1"=834'	1"=1250'	36.00
24x24 Full Frame	2.5X	1"=1320'	1"=2000'	44.00
24x24 Sectional	5.0X	1"=660'	1"=1000'	44.00
30x30 Full Frame	3.0X	1"=1100'	1"=1667'	57.00
30x30 Sectional	6.0X	1"=550'	1"=834'	57.00

Enlargements produced from NAIP QUARTER QUADS:				
(QQ's): Quarter Quad (odd size) color/color infrared digital paper enlargements are determined by the nearest established size as follows: (i.e., actual size 16x20 is priced as 20x20).				
ACTUAL SIZE-INCHES (PRICE SIZE)	DIAMETER OF ENLARGEMENT	APPROX. FEET PER INCH FROM		PRICE \$
		1m	2m	
16x20 Sectional (20x20)	4.0X	1"=834'	1"=834'	36.00
20x24 Full Frame (24x24)	3.0X	1"=1100'	1"=1100'	44.00
20x24 Sectional (24x24)	5.0X	1"=660'	Not Available	44.00
26x30 Full Frame (30x30)	4.0X	1"=834'	1"=834'	57.00
26x30 Sectional (30x30)	6.0X	1"=500'	Not Available	57.00

ORIGINAL FILM FORMAT AND SCALES		
10" x 10" CONTACT PRINTS, FILM POSITIVE TRANSPARENCIES AND FILM NEGATIVES		
Direct copies from the full frame. Not available as sectionals or with scale accuracy.		
APPROXIMATE SCALES OF ORIGINAL PHOTOGRAPHY		DISTANCE ALONG ONE SIDE OF PHOTO
FRACTIONAL SCALE	10" x 10" SCALES FEET/INCH	
1:20,000	1667	2.84 miles
1:40,000	3333	5.68 miles
1:60,000	5000	8.52 miles



METHODS FOR DETERMINING PRINT SELECTION

Refer to page 2 of order form FSA-441 "How to Order Aerial Photography"

EXHIBIT III-6

AERIAL PHOTO INDEXING

TOWNSHIP _____

RANGE _____

Section	Pre-1970	1978-1980	1991-1995
1			
2			
3			
4			
5			
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35			
36			

EXHIBIT III-6 (cont.)

AERIAL PHOTO INDEXING EXAMPLE

TOWNSHIP 7S RANGE 1W COUNTY

Section	Quadrangle	1978-1980	1991-1995
1		178-311	278-126
2		178-311	278-126
3		178-311	
4		178-311	
5		178-311	
6		178-311	
7		178-311	
8		178-311	
9		178-311	
10		178-311	
11		178-311	278-126
12			278-126
13			278-126
14		178-311, 178-309	278-126
15		178-311, 178-309	
16		178-311, 178-309	
17		178-309	
18			278-109
19			278-109
20		178-309	
21		178-309	
22		178-309	
23		178-309	278-124
24			278-124
25			278-124
26		178-309	248-124
27		178-309	
28		178-309	
29		178-309	
30		178-309	278-109, 278-110
31		178-309	278-110
32		178-309	
33		178-309	
34		178-309	
35		278-124	
36		248-124	

* Could also index WRS photos or other resources

Roll Number

Exposure Number

EXHIBIT III-7

AVAILABLE ASCS AERIAL PHOTOGRAPHS

http://www.fsa.usda.gov/Internet/FSA_File/catalog.txt

Aerial Imagery Catalog Listing libraried at the

USDA - Farm Service Agency
Aerial Photography Field Office (APFO)
2222 West 2300 South
Salt Lake City, UT 84119-2020

(801)844-2922 - Customer Service Section
(801)956-3653 - Fax
(801)956-3654 – TDD

apfo.sales@slc.usda.gov
www.apfo.usda.gov

This catalog listing indicates the various imagery coverage used by the U.S. Department of Agriculture (USDA) from 1955 to the present. It shows imagery used primarily by the Farm Service Agency (FSA) and the Natural Resources and Conservation Service (NRCS). For imagery prior to 1955, please contact the National Archives at:

National Archives & Records Administration
Customer Services
8601 Adelphi Road
College Park MD 20740-6001
Phone: 866-272-6272
Menu Path: #7 Other Types of Research Assistance
 #2 Special Media Records
 #2 Aerial Photography
Fax: 301-837-3622
E-mail: carto@nara.gov
Website: www.archives.gov

Coverage is listed alphabetically by county. A Federal Information Processing Standard (FIPS) numerical code was assigned to each county after July 1, 1971. The prior years of imagery were assigned an alpha code, shown in parenthesis. Visit the FIPS Index at:

http://www.fsa.usda.gov/Internet/FSA_File/alphafips.pdf

Some form of an index (i.e. digital, line, photo, spot) is available for most imagery projects. The number of index sheets required for each project is shown on this listing.

Rectified enlargements are available upon request from imagery that was used for the FSA and some NRCS programs. Rectified means scale, tip and tilt data has been computed through an analytical aerotriangulation system and this allows for the production of true-to-scale enlargements for indicated projects.

Current aerial imagery is now obtainable in digital a format on CD, DVD or hard drive media. Compressed County Mosaics (CCM) and associated Quarter Quads (QQ) are available as indicated in the listing. NAIP 2002 will have no CCM's.

Scanning aerial imagery film on repository at the APFO (1955 - present) can also produce digital imagery products. For more information visit:

<http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prod&topic=pds>

or, contact our Customer Service Section for further details on these products. You may also refer to our order form and price list at:

http://www.fsa.usda.gov/Internet/FSA_File/fsa0441_10302007.pdf

http://www.fsa.usda.gov/Internet/FSA_File/fsa0441a_10302007.pdf

Offered in the catalog listing at each state and county heading is a link to locate the state or county office address and phone number at:

<http://www.fsa.usda.gov/FSA/stateOffices?area=stoffice&subject=landing&topic=landing>

<http://offices.sc.egov.usda.gov/locator/app>

You may wish to visit the office to view the current imagery and have them assist you in identifying aerial imagery from the APFO.

Square mile land area figures compiled from the US Census Bureau at:

http://www.census.gov/population/www/censusdata/files/90den_stco.txt

Glossary of Terms:

PROG	The program type used to identify the imagery. NAIP = National Agriculture Imagery Program NDOP = National Digital Ortho Program NAPP = National Aerial Photography Program USDA = U.S. Department of Agriculture Cooperative Program NHAP = National High Altitude Program FSA = Farm Service Agency NRCS = Natural Resource and Conservation Service *** Program types are frequently changed due to acquisition of new coverage.
%COV	The percentage of the county covered. If this is anything other than a 100%, research will be required to determine if your area of interest falls within the partially flown area.
YEAR	The majority year the source imagery was obtained.
RES/SCL	The metric resolution of the digital imagery (ex. 1 = 1 Meter Resolution) or the representative film scale of the photography. (ex. 15840 = 1:15,840)
BND/FILM	The original film type used in acquisition or the default storage format. BIP = Band Interleaved by Pixel BSQ = Band Sequential BIL = Band Interleaved by line NC = Natural Color CP = Color Positive CN = Color Negative BW = Black and White (Generally a negative film base). CIRP = Color Infrared Positive CIRN = Color Infrared Negative CPD = Color Positive Dup M4B = Multi-spectral 4 Band
FMT	Graphic Image Format(s)

GT = GeoTiff (Georeferenced Tagged Image File)
MR = MrSid (Multi-Resolution Seamless Image [compressed])
TF = TIFF (Tagged Image File)
J2 = Multi Band Geo JPEG 2000

Index Format(s)

DI = Digital Index*
LI = Line Index*
SI = Spot Index*

* A detailed line map indicating roll and exposure needed for coverage of that area. The number listed indicates the number of sheets available for that program area.

PI = Photo Index

A mosaic assembly of prints covering the program area.

QTY

Graphic Image Format(s) - The number of image files required to write off the complete project or county.

Index Format(s) - The number of sheets available for that program area.

RA

If "Y", rectification data is available. Scale accurate black and white enlargements can be photographically reproduced.

REMARKS

Various notes pertinent to specific Program acquisitions.
CCM - County Compressed Mosaic
QQ - Quarter Quad
GB - Gigabyte file size calculated using decimal system

Please contact us with any questions regarding the varying types of remarks for further details.

Customer Services: (801) 844-2922

(FAX): (801) 956-3553

(TDD): (801) 956-3654

Or email: apfo.sales@slc.usda.gov

MONTANA

Date: 12-MAR-2009

STATE OF MONTANA - 30000()

Square Mile Land Area: 145556

State FSA Office:

<http://www.fsa.usda.gov/FSA/stateOffices?area=stoffice&subject=landing&topic=landing>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06		2006	2	NC	MR			56		CCM 32.268GB
NAIP05		2005	1	NC	MR			65		CCM 143.776GB
NAIP05		2005	1	NC	GT			11703		QQ 1483.136GB
NAIP04	2004		2	NC	MR			56		CCM 5.291GB
8000 BW	PI		2	N		BILLINGS CITY				SCS 100 1970

BEAVERHEAD - 30001(CXM)

Square Mile Land Area: 5580

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM 1.489GB
NAIP06		2006	2	NC	GT			452		QQ
NAIP05	100	2005	1	NC	MR			2		CCM 6.247GB
NAIP05		2005	1	NC	GT			512		QQ
NAPP3	99	2002	40000	BW					N	
NAPP2	100	1995	40000	BW	DI			3	Y	PARTIALLY RECTIFIED
NAPP1	100	1990	40000	BW	SI			5	Y	PARTIALLY RECTIFIED
NHAP1	100	1985	60000	CIRP					N	
NRCS	(P)	1979	40000	BW	PI			7	Y	6565
FSA	(P)	1972	20000	BW	PI			4	N	6564
FSA	(P)	1965	20000	BW	PI			14	N	6563 A&B
FSA	(P)	1955	20000	BW	PI			20	N	6562 A&B

BIG HORN - 30003(CCL)

Square Mile Land Area: 5055

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM 1.301GB
NAIP06		2006	2	NC	GT			446		QQ
NAIP05	100	2005	1	NC	MR			2		CCM 5.083GB
NAIP05		2005	1	NC	GT			439		QQ
NAIP04	90	2004	2	NC	MR			2		CCM .238GB
NAIP04		2004	2	NC	GT			430		QQ
BIA	100	2003	15840	CN	LI			1	N	CROW INDIAN RESERVATION
NAPP2	100	1996	40000	BW					N	
NDOP	100	1996	1	BW	MR			2		CCM
NAPP1	100	1991	40000	BW	DI			2	Y	
NHAP1	100	1980	60000	CIRP					N	
NRCS	100	1980	40000	BW	PI			7	Y	6568
FSA	100	1970	40000	BW	PI			21	N	6567 A-C
FSA	(P)	1961	20000	BW	PI			17	N	6566 A&B

BLAINE - 30005(MV)

Square Mile Land Area: 4279

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .790GB
NAIP06		2006	2	NC	GT	396		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 3.157GB
NAIP05		2005	1	NC	GT	394		QQ
NAIP04	99	2004	2	NC	MR	2		CCM .195GB
NAIP04		2004	2	NC	GT	375		QQ
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	SI	4	Y	
NRCS	(P)	1990	32000	CIRP	LI	4	N	
NHAP1	100	1986	60000	CIRP			N	
FSA	100	1980	40000	BW	PI	17	Y	6572 A&B
FSA	(P)	1972	40000	BW	PI	6	N	6571
FSA	(P)	1967	20000	BW	PI	16	N	6570 A&B
FSA	100	1956	20000	BW	PI	17	N	6569 A&B

BROADWATER - 30007(AZT)

Square Mile Land Area: 1245

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	90	2006	2	NC	MR	1		CCM .356GB
NAIP06		2006	2	NC	GT	128		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.421GB
NAIP05		2005	1	NC	GT	137		QQ
NAIP04	98	2004	2	NC	MR	1		CCM .074GB
NAIP04		2004	2	NC	GT	133		QQ
NAPP3	69	2002	40000	BW			N	
NDOP	100	1997	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
NRCS	(P)	1979	40000	BW	PI	2	Y	6576
FSA	(P)	1972	20000	BW	PI	2	N	6575
MILA1	(P)	1971	32000	BW	PI	6	N	12385, A1 PROJECT
FSA	(P)	1965	20000	BW	PI	6	N	6574
FSA	(P)	1955	20000	BW	PI	5	N	6573

CARBON - 30009(DWT)

Square Mile Land Area: 2074

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .565GB
NAIP06		2006	2	NC	GT	167		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.180GB
NAIP05		2005	1	NC	GT	192		QQ
NAIP04	55	2004	2	NC	MR	1		CCM .089GB
NAIP04		2004	2	NC	GT	140		QQ
NAPP2	100	1996	40000	BW	DI	2	Y	
NDOP	100	1996	1	BW	MR	1		CCM

NAPP1	100	1991	40000	BW		N	
NHAP1	100	1981	60000	CIRP		N	
NRCS	(P)	1980	40000	BW	PI	4	Y 6579
FSA	(P)	1970	20000	BW	PI	7	N 6578
FSA	(P)	1962	20000	BW	PI	6	N 6577

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CARTER - 30011(DCH)

Square Mile Land Area: 3313

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .590GB
NAIP06		2006	2	NC	GT			300		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.239GB
NAIP05		2005	1	NC	GT			289		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .158GB
NAIP04		2004	2	NC	GT			299		QQ
NAPP2	100	1996	40000	BW					N	
NAPP1	100	1991	40000	BW	SI			2	Y	
FSA	100	1980	40000	BW	PI			15	Y	6582 A&B
NHAP1	100	1980	60000	CIRP					N	
FSA	(P)	1967	20000	BW	PI			12	N	6581 A&B
FSA	100	1955	20000	BW	PI			12	N	6580 A&B

CASCADE - 30013(MX)

Square Mile Land Area: 2673

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	98	2006	2	NC	MR			1		CCM .584GB
NAIP06		2006	2	NC	GT			259		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.566GB
NAIP05		2005	1	NC	GT			267		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .142GB
NAIP04		2004	2	NC	GT			286		QQ
NAPP3	74	2002	40000	BW					N	PARTIAL COVERAGE
NAPP2	100	1995	40000	BW					N	
NDOP	100	1995	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	SI			4	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP					N	
FSA	100	1977	40000	BW	PI			14	N	6585 A&B
MILA1	(P)	1971	32000	BW	PI			1	N	12386, A1 PROJECT
FSA	(P)	1966	20000	BW	PI			11	N	6584 A&B
FSA	(P)	1957	20000	BW	PI			11	N	6583 A&B

CHOUTEAU - 30015(MW)

Square Mile Land Area: 3936

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .771GB
NAIP06		2006	2	NC	GT			364		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 3.285GB
NAIP05		2005	1	NC	GT			382		QQ
NAIP04	100	2004	2	NC	MR			2		CCM .182GB
NAIP04		2004	2	NC	GT			388		QQ

NAPP3	19	2002	40000	BW		N	PARTIAL COVERAGE
NAPP2	100	1997	40000	BW		N	
NDOP	100	1997	1	BW	MR	1	CCM
NAPP1	100	1991	40000	BW	SI	5	Y
NHAP1	100	1984	60000	CIRP		N	
FSA	100	1979	40000	BW	PI	17	Y 6588 A&B
FSA	(P)	1966	20000	BW	PI	18	N 6587 A&B
FSA	100	1956	20000	BW	PI	16	N 6586 A&B

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CUSTER - 30017(DIU)

Square Mile Land Area: 3775

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .770GB
NAIP06		2006	2	NC	GT	349		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 3.079GB
NAIP05		2005	1	NC	GT	354		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .398GB
NAIP04		2004	2	NC	GT	331		QQ
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	LI	4	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1978	40000	BW	PI	18	Y	6591 A&B
FSA	100	1968	20000	BW	PI	15	N	6590 A&B
FSA	100	1958	20000	BW	PI	14	N	6589 A&B

DANIELS - 30019(ZT)

Square Mile Land Area: 1443

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .263GB
NAIP06		2006	2	NC	GT	144		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.052GB
NAIP05		2005	1	NC	GT	145		QQ
NAPP2	100	1996	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	1	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	6	N	6594
FSA	100	1969	40000	BW	PI	6	N	6593
FSA	100	1959	20000	BW	PI	6	N	6592

DAWSON - 30021(AZM)

Square Mile Land Area: 2380

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .508GB
NAIP06		2006	2	NC	GT	224		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.032GB
NAIP05		2005	1	NC	GT	233		QQ

NAIP04	18	2004	2	NC	MR	1	CCM	.045GB
NAIP04		2004	2	NC	GT	36	QQ	
NAPP2	100	1996	40000	BW		N		
NDOP	100	1996	1	BW	MR	1	CCM	
NAPP1	100	1991	40000	BW	SI	2	Y	
FSA	100	1980	40000	BW	PI	12	N	6598 A&B
NHAP1	100	1980	60000	CIRP		N		
NRCS	100	1971	80000	BW	PI	2	N	6597
FSA	100	1967	20000	BW	PI	12	N	6596 A&B
FSA	100	1957	20000	BW	PI	11	N	6595 A&B

DEER LODGE - 30023(EHM)

Square Mile Land Area: 741

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	30	2006	2	NC	MR	1	CCM	.249GB
NAIP06		2006	2	NC	GT	62	QQ	
NAIP05	100	2005	1	NC	MR	1	CCM	1.168GB
NAIP05		2005	1	NC	GT	92	QQ	
NAIP04	92	2004	2	NC	MR	1	CCM	.045GB
NAIP04		2004	2	NC	GT	72	QQ	
NAPP3	70	2002	40000	BW		N		
NAPP2	100	1995	40000	BW	DI	1	Y	
NDOP	100	1995	1	BW	MR	1	CCM	
NAPP1	100	1990	40000	BW	SI	1	Y	
NHAP1	100	1984	60000	CIRP		N		
FSA	(P)	1979	40000	BW	PI	8	N	6600
FSA	(P)	1960	20000	BW	PI	4	N	6599

FALLON - 30025(CWE)

Square Mile Land Area: 1633

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1	CCM	.359GB
NAIP06		2006	2	NC	GT	158	QQ	
NAIP05	100	2005	1	NC	MR	1	CCM	1.540GB
NAIP05		2005	1	NC	GT	161	QQ	
NAIP04	100	2004	2	NC	MR	1	CCM	.089GB
NAIP04		2004	2	NC	GT	170	QQ	
NAPP2	100	1996	40000	BW		N		
NDOP	100	1996	1	BW	MR	1	CCM	
NAPP1	100	1991	40000	BW	SI	2	Y	
NHAP1	100	1980	60000	CIRP		N		
FSA	100	1979	40000	BW	PI	8	N	6603
FSA	(P)	1967	20000	BW	PI	8	N	6602
FSA	100	1955	20000	BW	PI	8	N	6601

FERGUS - 30027(MY)

Square Mile Land Area: 4253

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1	CCM	.968GB
NAIP06		2006	2	NC	GT	413	QQ	
NAIP05	100	2005	1	NC	MR	2	CCM	4.066GB

NAIP05	2005	1	NC	GT	422	QQ
NAIP04	100 2004	2	NC	MR	1	CCM .107GB
NAIP04	2004	2	NC	GT	152	QQ
BLM	18 2002	15840	CN	LI	6 N	UPPER MISSOURI RIVER BREAKS
NAPP2	100 1996	40000	BW	DI	4 Y	
NDOP	100 1996	1	BW	MR	1	CCM
NAPP1	100 1991	40000	BW	SI	4 Y	PARTIALLY RECTIFIED
NRCS	(P) 1990	32000	CIRP	LI	4 N	
NHAP1	100 1986	60000	CIRP		N	
NRCS	100 1980	40000	BW	PI	21 N	6606 A-C
FSA	(P) 1972	40000	BW	PI	17 N	6605 A&B
FSA	(P) 1962	20000	BW	PI	17 N	6604 A&B

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FLATHEAD - 30029(MI)

Square Mile Land Area: 5280

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	30	2006	2	NC	MR			1		CCM .664GB
NAIP06		2006	2	NC	GT			235		QQ
NAIP05	100	2005	1	NC	MR			2		CCM 5.580GB
NAIP05		2005	1	NC	GT			504		QQ
NAIP04	68	2004	2	NC	MR			2		CCM .192GB
NAIP04		2004	2	NC	GT			317		QQ
NAPP3	78	2003	40000	BW					N	
NAPP2	96	1995	40000	BW					N	
NAPP1	100	1990	40000	BW	SI			3 Y		PARTIALLY RECTIFIED
NDOP	100	1990	1	BW	MR			2		CCM
NHAP1	100	1984	60000	CIRP					N	
NRCS	(P)	1979	40000	BW	PI			3 N		6609
FSA	(P)	1974	40000	BW	PI			7 N		6608
FSA	(P)	1961	20000	BW	PI			4 N		6607

GALLATIN - 30031(NE)

Square Mile Land Area: 2540

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	42	2006	2	NC	MR			1		CCM .755GB
NAIP06		2006	2	NC	GT			161		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 3.565GB
NAIP05		2005	1	NC	GT			255		QQ
NAPP3	81	2002	40000	BW					N	PARTIAL COVERAGE
NAPP2	100	1995	40000	BW					N	
NDOP	100	1995	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	DI			2 Y		PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP					N	
FSA	(P)	1979	40000	BW	PI			8 N		6611
MILA1	(P)	1971	32000	BW	PI			5 N		12387, A1 PROJECT
FSA	(P)	1965	20000	BW	PI			8 N		6610

GARFIELD - 30033(AZO)

Square Mile Land Area: 4812

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .993GB
NAIP06		2006	2	NC	GT			441		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 3.974GB
NAIP05		2005	1	NC	GT			453		QQ
NAIP04	22	2004	2	NC	MR			1		CCM .070GB
NAIP04		2004	2	NC	GT			95		QQ
BLM	100	2003	15840	CN	LI			3	N	Miles City Area
NAPP2	100	1996	40000	BW					N	
NDOP	100	1996	1	BW	MR			2		CCM
NAPP1	100	1991	40000	BW	DI			2	Y	
NHAP1	100	1985	60000	CIRP					N	
FSA	100	1978	40000	BW	PI			24	N	6614 A-C
FSA	(P)	1968	20000	BW	PI			16	N	6613 A&B
FSA	100	1958	20000	BW	PI			18	N	6612 A&B

GLACIER - 30035 (MS)

Square Mile Land Area: 3006

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .479GB
NAIP06		2006	2	NC	GT			227		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.596GB
NAIP05		2005	1	NC	GT			296		QQ
NAIP04	85	2004	2	NC	MR			1		CCM .108GB
NAIP04		2004	2	NC	GT			221		QQ
NAPP3	76	2002	40000	BW					N	
BIA	100	1999	15840	CN	LI			1	N	BLACKFEET INDIAN RES
NAPP2	100	1995	40000	BW					N	
NDOP	100	1995	1	BW	MR			1		CCM
NAPP1	100	1990	40000	BW	SI			2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP					N	
FSA	(P)	1982	40000	BW	PI			12	N	6618 A&B
FSA	(P)	1974	40000	BW	PI			9	N	6617
FSA	(P)	1966	20000	BW	PI			9	N	6616
FSA	(P)	1958	20000	BW	PI			9	N	6615

GOLDEN VALLEY - 30037 (DWU)

Square Mile Land Area: 1180

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .337GB
NAIP06		2006	2	NC	GT			118		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 1.353GB
NAIP05		2005	1	NC	GT			133		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .073GB
NAIP04		2004	2	NC	GT			126		QQ
NAPP2	100	1996	40000	BW	DI			2	Y	
NDOP	100	1996	1	BW	MR			1		CCM
NDOP	100	1996	10	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	DI			1	Y	
NHAP1	100	1986	60000	CIRP	SI			2	Y	
NRCS	100	1979	40000	BW	PI			4	N	6621
FSA	(P)	1970	20000	BW	PI			5	N	6620

FSA (P) 1962 20000 BW PI 5 N 6619

GRANITE - 30039(EHN)

Square Mile Land Area: 1737

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	30	2006	2	NC	MR	1		CCM .384GB
NAIP06		2006	2	NC	GT	98		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.644GB
NAIP05		2005	1	NC	GT	172		QQ
NAIP04	65	2004	2	NC	MR	1		CCM .070GB
NAIP04		2004	2	NC	GT	101		QQ
NAPP3	60	2003	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	1	Y	
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	2	Y	
NHAP1	100	1985	60000	CIRP			N	
FSA	(P)	1979	40000	BW	PI	6	N	6623
FSA	(P)	1960	20000	BW	PI	5	N	6622

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HILL - 30041(AZR)

Square Mile Land Area: 2946

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .505GB
NAIP06		2006	2	NC	GT	276		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.161GB
NAIP05		2005	1	NC	GT	279		QQ
BIA		2004	15840	CN	LI	4	N	ROCKY BOYS INDIAN RESERVATION
NAIP04	50	2004	2	NC	MR	1		CCM .070GB
NAIP04		2004	2	NC	GT	134		QQ
NAPP2	100	1997	40000	BW			N	
NDOP	100	1997	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	SI	4	Y	
NHAP1	100	1984	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	14	N	6626 A&B
FSA	(P)	1969	40000	BW	PI	13	N	6625 A&B
FSA	100	1960	20000	BW	PI	10	N	6624

JEFFERSON - 30043(CZL)

Square Mile Land Area: 1654

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .408GB
NAIP06		2006	2	NC	GT	137		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.631GB
NAIP05		2005	1	NC	GT	169		QQ
NAIP04	79	2004	2	NC	MR	1		CCM .074GB
NAIP04		2004	2	NC	GT	119		QQ
BLM	100	2003	15840	CN	LI	5	N	Butte Area
NAPP3	100	2002	40000	BW			N	
NAPP2	100	1995	40000	BW			N	

NDOP	100	1995	1	BW	MR	1	CCM	
NAPP1	100	1990	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
NRCS	(P)	1979	40000	BW	PI	3	N	6630
FSA	(P)	1972	20000	BW	PI	3	N	6629
FSA	(P)	1964	20000	BW	PI	6	N	6628
FSA	(P)	1955	20000	BW	PI	6	N	6627

JUDITH BASIN - 30045(NA)

Square Mile Land Area: 1880

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES BAND			QTY	RA	REMARKS
			SCL	FILM	FMT			
NAIP06	90	2006	2	NC	MR	1	CCM	.396GB
NAIP06		2006	2	NC	GT	157	QQ	
NAIP05	100	2005	1	NC	MR	1	CCM	1.585GB
NAIP05		2005	1	NC	GT	189	QQ	
NAIP04	71	2004	2	NC	MR	1	CCM	.070GB
NAIP04		2004	2	NC	GT	124	QQ	
NDOP	100	1997	1	BW	MR	1	CCM	
NAPP2	100	1996	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
FSA	(P)	1979	40000	BW	PI	8	N	6633
FSA	(P)	1965	20000	BW	PI	8	N	6632
FSA	(P)	1957	20000	BW	PI	8	N	6631

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LAKE - 30047(MO)

Square Mile Land Area: 1655

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES BAND			QTY	RA	REMARKS
			SCL	FILM	FMT			
NAIP06	35	2006	2	NC	MR	1	CCM	.298GB
NAIP06		2006	2	NC	GT	110	QQ	
NAIP05	100	2005	1	NC	MR	1	CCM	1.735GB
NAIP05		2005	1	NC	GT	176	QQ	
NAIP04	92	2004	2	NC	MR	1	CCM	.094GB
NAIP04		2004	2	NC	GT	170	QQ	
NAPP3	72	2003	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	1	Y	PARTIALLY RECTIFIED
NAPP1	100	1990	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1982	60000	CIRP	SI	3	Y	
NRCS	(P)	1979	40000	BW	PI	3	N	6637
FSA	(P)	1972	20000	BW	PI	3	N	6636
FSA	(P)	1964	20000	BW	PI	7	N	6635
FSA	(P)	1955	20000	BW	PI	6	N	6634

LEWIS & CLARK - 30049(AZU)

Square Mile Land Area: 3513

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES BAND			QTY	RA	REMARKS
			SCL	FILM	FMT			
NAIP06	85	2006	2	NC	MR	1	CCM	.741GB
NAIP06		2006	2	NC	GT	234	QQ	
NAIP05	100	2005	1	NC	MR	2	CCM	4.694GB

NAIP05		2005	1	NC	GT	351	QQ
NAIP04	94	2004	2	NC	MR	2	CCM .192GB
NAIP04		2004	2	NC	GT	335	QQ
NAPP3	100	2002	40000	BW		N	
NAPP2	100	1995	40000	BW		N	
NDOP	100	1995	1	BW	MR	2	CCM
NAPP1	100	1990	40000	BW	DI	3	Y PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP		N	
FSA	(P)	1978	40000	BW	PI	11	N 6641 A&B
FSA	(P)	1966	20000	BW	PI	1	N 6640
FSA	(P)	1965	20000	BW	PI	11	N 6639 A&B
FSA	(P)	1955	20000	BW	PI	10	N 6638

LIBERTY - 30051(AZQ)

Square Mile Land Area: 1459

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	97	2006	2	NC	MR	1		CCM .277GB
NAIP06		2006	2	NC	GT	142		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.184GB
NAIP05		2005	1	NC	GT	152		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .067GB
NAIP04		2004	2	NC	GT	154		QQ
NAPP3	52	2002	40000	BW		N		PARTIAL COVERAGE
NDOP	100	1997	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW		N		
NAPP1	100	1991	40000	BW	SI	2	Y	
NHAP1	100	1984	60000	CIRP		N		
FSA	100	1979	40000	BW	PI	8	N	6644
FSA	100	1966	20000	BW	PI	8	N	6643
FSA	100	1957	20000	BW	PI	6	N	6642

MONTANA

Date: 12-MAR-2009

LINCOLN - 30053(DRI)

Square Mile Land Area: 3728

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	38	2006	2	NC	MR	1		CCM .670GB
NAIP06		2006	2	NC	GT	166		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.848GB
NAIP05		2005	1	NC	GT	338		QQ
NAIP04	47	2004	2	NC	MR	1		CCM .113GB
NAIP04		2004	2	NC	GT	172		QQ
NAPP3	94	2003	40000	BW		N		
NAPP2	100	1995	40000	BW		N		
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	3	Y	PARTIALLY RECTIFIED
NHAP1	100	1982	60000	CIRP		N		
NRCS	(P)	1979	40000	BW	PI	4	N	6646
MILA1	(P)	1970	33000	BW	PI	6	N	12383, A1 PROJECT
FSA	(P)	1961	20000	BW	PI	11	N	6645 A&B

MCCONE - 30055(AZN)

Square Mile Land Area: 2652

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .590GB
NAIP06		2006	2	NC	GT			263		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.465GB
NAIP05		2005	1	NC	GT			265		QQ
NAIP04	9	2004	2	NC	MR			1		CCM .025GB
NAIP04		2004	2	NC	GT			20		QQ
NAPP2	100	1996	40000	BW					N	
NDOP	100	1996	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	SI			2	Y	
FSA	100	1980	40000	BW	PI			13	N	6650 A&B
NHAP1	100	1980	60000	CIRP					N	
FSA	100	1970	40000	BW	PI			13	N	6649 A&B
FSA	(P)	1965	20000	BW	PI			10	N	6648
FSA	100	1957	20000	BW	PI			14	N	6647 A&B

MADISON - 30057(CXK)

Square Mile Land Area: 3541

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	85	2006	2	NC	MR			1		CCM .754GB
NAIP06		2006	2	NC	GT			274		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 3.015GB
NAIP05		2005	1	NC	GT			332		QQ
NAPP3	99	2002	40000	BW					N	
NAPP2	100	1995	40000	BW	DI			2	Y	PARTIALLY RECTIFIED
NDOP	100	1995	1	BW	MR			1		CCM
NAPP1	100	1990	40000	BW	SI			5	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP					N	
FSA	100	1979	40000	BW	PI			1	N	6654
NRCS	100	1979	40000	BW	PI			20	N	6655 A&B
FSA	(P)	1972	20000	BW	PI			2	N	6653
FSA	(P)	1964	20000	BW	PI			15	N	6652 A&B
FSA	(P)	1955	20000	BW	PI			14	N	6651 A&B

MONTANA

Date: 12-MAR-2009

MEAGHER - 30059(DWV)

Square Mile Land Area: 2356

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	94	2006	2	NC	MR			1		CCM .620GB
NAIP06		2006	2	NC	GT			209		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.482GB
NAIP05		2005	1	NC	GT			243		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .130GB
NAIP04		2004	2	NC	GT			245		QQ
NAPP3	45	2002	40000	BW					N	PARTIAL COVERAGE
NDOP	100	1997	1	BW	MR			1		CCM
NAPP2	100	1996	40000	BW					N	
NAPP1	100	1991	40000	BW	DI			1	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP					N	
FSA	(P)	1979	40000	BW	PI			9	N	6657

MILA1 (P) 1971 32000 BW PI 3 N 12384, A1 PROJECT
 FSA (P) 1965 20000 BW PI 6 N 6656

MINERAL - 30061 (DYR)

Square Mile Land Area: 1223

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	10	2006	2	NC	MR	1		CCM .155GB
NAIP06		2006	2	NC	GT	30		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.147GB
NAIP05		2005	1	NC	GT	140		QQ
NAIP04	39	2004	2	NC	MR	1		CCM .038GB
NAIP04		2004	2	NC	GT	57		QQ
NAPP3	93	2002	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW	DI	1	Y	
NAPP1	100	1990	40000	BW	SI	2	Y	
NHAP1	100	1982	60000	CIRP			N	
NRCS	(P)	1979	40000	BW	PI	2	N	6661
FSA	(P)	1972	20000	BW	PI	2	N	6660
MILA2	(P)	1970	33000	BW	PI	1	N	12382, A2 PROJECT
FSA	(P)	1963	20000	BW	PI	4	N	6659
FSA	(P)	1955	20000	BW	PI	1	N	6658

MISSOULA - 30063 (CNQ)

Square Mile Land Area: 2624

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	20	2006	2	NC	MR	1		CCM .549GB
NAIP06		2006	2	NC	GT	108		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.818GB
NAIP05		2005	1	NC	GT	270		QQ
NAIP04	83	2004	2	NC	MR	1		CCM .140GB
NAIP04		2004	2	NC	GT	225		QQ
NAPP3	76	2003	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	1	Y	
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	3	Y	
NHAP1	100	1984	60000	CIRP			N	
NRCS	(P)	1980	40000	BW	PI	4	N	6665
FSA	(P)	1972	20000	BW	PI	3	N	6664
FSA	(P)	1964	20000	BW	PI	9	N	6663
FSA	(P)	1955	20000	BW	PI	6	N	6662

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MUSSELSHELL - 30065 (DIS)

Square Mile Land Area: 1887

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .412GB
NAIP06		2006	2	NC	GT	183		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.792GB
NAIP05		2005	1	NC	GT	194		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .111GB

NAIP04		2004		2	NC	GT		189	QQ
NAPP2	100	1996	40000	BW	DI			2	Y
NDOP	100	1996		1	BW	MR		1	CCM
NAPP1	100	1991	40000	BW	SI			1	Y
NHAP1	100	1986	60000	CIRP	SI			4	Y
NRCS	100	1980	40000	BW				N	6669
NRCS	100	1979	40000	BW	PI			10	N 6668
FSA	(P)	1968	20000	BW	PI			8	N 6667
FSA	100	1957	20000	BW	PI			9	N 6666

PARK - 30067 (DWW) Square Mile Land Area: 2631
County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	78	2006	2	NC	MR			1		CCM .693GB
NAIP06		2006	2	NC	GT			170		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 2.910GB
NAIP05		2005	1	NC	GT			244		QQ
NAIP04	69	2004	2	NC	MR			1		CCM .096GB
NAIP04		2004	2	NC	GT			170		QQ
NAPP3	6	2002	40000	BW				N		PARTIAL COVERAGE
NAPP2	100	1998	40000	BW				N		
NDOP	100	1998	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	DI			1	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP				N		
FSA	(P)	1979	40000	BW	PI			8	N	6671
FSA	(P)	1965	20000	BW	PI			9	N	6670

PETROLEUM - 30069 (AZP) Square Mile Land Area: 1672
County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .400GB
NAIP06		2006	2	NC	GT			176		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 1.695GB
NAIP05		2005	1	NC	GT			181		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .103GB
NAIP04		2004	2	NC	GT			178		QQ
BLM	100	2003	15840	CN	LI			3	N	Lewiston Area
NAPP2	100	1996	40000	BW	DI			2	Y	
NDOP	100	1996	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	DI			1	Y	
NHAP1	100	1986	60000	CIRP				N		
NRCS	100	1980	40000	BW	PI			4	N	6673
FSA	(P)	1968	20000	BW	PI			6	N	6672

MONTANA Date: 12-MAR-2009

PHILLIPS - 30071 (AZS) Square Mile Land Area: 5287
County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
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NAIP06	100	2006	2	NC	MR	1	CCM	1.240GB
NAIP06		2006	2	NC	GT	484	QQ	
NAIP05	100	2005	1	NC	MR	2	CCM	4.663GB
NAIP05		2005	1	NC	GT	480	QQ	
NAIP04	100	2004	2	NC	MR	2	CCM	.251GB
NAIP04		2004	2	NC	GT	479	QQ	
BIA	100	2003	15840	CN	LI	1	N	FORT BELKNAP INDIAN RESERVATION
NAPP2	100	1996	40000	BW	DI	2	Y	
NDOP	100	1996	1	BW	MR	2		CCM
NAPP1	100	1991	40000	BW	SI	4	Y	
NHAP1	100	1986	60000	CIRP	SI	9	Y	
FSA	100	1980	40000	BW	PI	20	N	6677 A&B
FSA	(P)	1972	40000	BW	PI	4	N	6676
FSA	(P)	1969	40000	BW	PI	20	N	6675 A&B
FSA	100	1959	20000	BW	PI	21	N	6674 A-C

PONDERA - 30073(ZR)

Square Mile Land Area: 1654

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .435GB
NAIP06		2006	2	NC	GT			158		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 1.920GB
NAIP05		2005	1	NC	GT			191		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .098GB
NAIP04		2004	2	NC	GT			194		QQ
NAPP3	100	2002	40000	BW					N	
NAPP2	100	1995	40000	BW					N	
NDOP	100	1995	1	BW	MR			1		CCM
NAPP1	100	1990	40000	BW	SI			2	Y	
NHAP1	100	1984	60000	CIRP					N	
FSA	(P)	1982	40000	BW	PI			4	N	6681
FSA	(P)	1979	40000	BW	PI			8	N	6680
FSA	(P)	1966	20000	BW	PI			9	N	6679
FSA	(P)	1957	20000	BW	PI			8	N	6678

POWDER RIVER - 30075(DWZ)

Square Mile Land Area: 3298

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR			1		CCM .538GB
NAIP06		2006	2	NC	GT			292		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 1.998GB
NAIP05		2005	1	NC	GT			274		QQ
NAIP04	100	2004	2	NC	MR			1		CCM .302GB
NAIP04		2004	2	NC	GT			255		QQ
NAPP2	100	1996	40000	BW	DI			2	Y	
NDOP	100	1996	1	BW	MR			1		CCM
NAPP1	100	1991	40000	BW	SI			3	Y	
NHAP1	100	1980	60000	CIRP					N	
FSA	100	1978	40000	BW	PI			12	N	6684 A&B
FSA	100	1967	20000	BW	PI			12	N	6683 A&B
FSA	(P)	1958	20000	BW	PI			2	N	6682

MONTANA

Date: 12-MAR-2009

POWELL - 30077(DYS)

Square Mile Land Area: 2340

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	44	2006	2	NC	MR	1		CCM .434GB
NAIP06		2006	2	NC	GT	144		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.942GB
NAIP05		2005	1	NC	GT	233		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .121GB
NAIP04		2004	2	NC	GT	205		QQ
BLM	100	2003	15840	CN	LI	5	N	Missoula Area
NAPP3	91	2002	40000	BW			N	
NAPP2	100	1995	40000	BW			N	
NDOP	100	1995	1	BW	TF	1		QQ
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
FSA	(P)	1979	40000	BW	PI	9	N	6687
FSA	(P)	1960	20000	BW	PI	7	N	6686
FSA	(P)	1955	20000	BW	PI	2	N	6685

PRAIRIE - 30079(DIV)

Square Mile Land Area: 1739

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .466GB
NAIP06		2006	2	NC	GT	165		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.030GB
NAIP05		2005	1	NC	GT	192		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .200GB
NAIP04		2004	2	NC	GT	163		QQ
NAPP2	100	1996	40000	BW	DI	2	Y	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	SI	2	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1978	40000	BW	PI	9	N	6690
FSA	100	1968	20000	BW	PI	10	N	6689
FSA	100	1958	20000	BW	PI	9	N	6688

RAVALLI - 30081(CNR)

Square Mile Land Area: 2388

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	19	2006	2	NC	MR	1		CCM .405GB
NAIP06		2006	2	NC	GT	95		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.501GB
NAIP05		2005	1	NC	GT	237		QQ
NAIP04	49	2004	2	NC	MR	1		CCM .075GB
NAIP04		2004	2	NC	GT	120		QQ
NAPP3	81	2003	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	2	Y	
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
NRCS	(P)	1979	40000	BW	PI	2	N	6694

FSA	(P)	1972	20000	BW	PI	3	N	6693
FSA	(P)	1964	20000	BW	PI	7	N	6692
FSA	(P)	1955	20000	BW	PI	7	N	6691

MONTANA

Date: 12-MAR-2009

RICHLAND - 30083(AZK)

Square Mile Land Area: 2103

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .465GB
NAIP06		2006	2	NC	GT	211		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.859GB
NAIP05		2005	1	NC	GT	214		QQ
NAPP2	100	1996	40000	BW	DI	1	Y	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	SI	2	Y	
FSA	100	1980	40000	BW	PI	14	Y	6697 A&B
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1967	20000	BW	PI	10	N	6696
FSA	100	1957	20000	BW	PI	10	N	6695

ROOSEVELT - 30085(ZV)

Square Mile Land Area: 2399

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .542GB
NAIP06		2006	2	NC	GT	254		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.167GB
NAIP05		2005	1	NC	GT	258		QQ
NDOP	100	1996	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	2	Y	
FSA	100	1980	40000	BW	PI	14	N	6700 A&B SEE 12348
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1967	20000	BW	PI	10	N	6699
FSA	100	1956	20000	BW	PI	10	N	6698

ROSEBUD - 30087(DIW)

Square Mile Land Area: 5042

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM 1.428GB
NAIP06		2006	2	NC	GT	459		QQ
NAIP05	100	2005	1	NC	MR	2		CCM 4.192GB
NAIP05		2005	1	NC	GT	460		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .270GB
NAIP04		2004	2	NC	GT	463		QQ
BIA	100	1999	15840	CN	LI	1	N	
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	2		CCM
NAPP1	100	1991	40000	BW	SI	4	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	23	N	6703 A-C
FSA	(P)	1968	20000	BW	PI	18	N	6702 A&B
FSA	100	1958	20000	BW	PI	21	N	6701 A-C

SANDERS - 30089(NO)

Square Mile Land Area: 2819

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	35	2006	2	NC	MR	1		CCM .967GB
NAIP06		2006	2	NC	GT	165		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 4.094GB
NAIP05		2005	1	NC	GT	295		QQ
NAIP04	65	2004	2	NC	MR	1		CCM .126GB
NAIP04		2004	2	NC	GT	198		QQ
NAPP3	97	2003	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	2	Y	
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	4	Y	PARTIALLY RECTIFIED
NHAP1	100	1982	60000	CIRP	SI	4	Y	
NRCS	100	1979	40000	BW	PI	4	N	6707
FSA	(P)	1972	20000	BW	PI	2	N	6706
MILA1	(P)	1970	33000	BW	PI	3	N	12388, A1 PROJECT
FSA	(P)	1964	20000	BW	PI	7	N	6705
FSA	(P)	1955	20000	BW	PI	5	N	6704

SHERIDAN - 30091(ZU)

Square Mile Land Area: 1720

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .296GB
NAIP06		2006	2	NC	GT	160		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.183GB
NAIP05		2005	1	NC	GT	160		QQ
NDOP	100	1996	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW	DI	2	Y	
NAPP1	100	1991	40000	BW	SI	1	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	8	N	6710
FSA	100	1967	20000	BW	PI	8	N	6709
FSA	100	1956	20000	BW	PI	8	N	6708

SILVER BOW - 30093(CZJ)

Square Mile Land Area: 716

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .259GB
NAIP06		2006	2	NC	GT	83		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.205GB
NAIP05		2005	1	NC	GT	92		QQ
NAIP04	90	2004	2	NC	MR	1		CCM .052GB
NAIP04		2004	2	NC	GT	82		QQ
NAPP3	100	2002	40000	BW			N	
NAPP2	100	1995	40000	BW	DI	1	Y	PARTIALLY RECTIFIED
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	1	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
FSA	(P)	1979	40000	BW	PI	5	N	6711

STILLWATER - 30095(CWF)

Square Mile Land Area: 1801

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .495GB
NAIP06		2006	2	NC	GT	158		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.479GB
NAIP05		2005	1	NC	GT	189		QQ
NAIP04	83	2004	2	NC	MR	1		CCM .087GB
NAIP04		2004	2	NC	GT	160		QQ
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	DI	2	Y	
NHAP1	100	1981	60000	CIRP			N	
NRCS	(P)	1979	40000	BW	PI	4	N	6714
FSA	(P)	1970	20000	BW	PI	8	N	6713
FSA	(P)	1962	20000	BW	PI	7	N	6712

SWEET GRASS - 30097(DWX)

Square Mile Land Area: 1849

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	85	2006	2	NC	MR	1		CCM .362GB
NAIP06		2006	2	NC	GT	152		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.859GB
NAIP05		2005	1	NC	GT	182		QQ
NAIP04	85	2004	2	NC	MR	1		CCM .083GB
NAIP04		2004	2	NC	GT	150		QQ
NDOP	100	1997	1	BW	MR	1		CCM
NAPP2	100	1996	40000	BW			N	
NAPP1	100	1991	40000	BW	DI	1	Y	
NHAP1	100	1984	60000	CIRP			N	
FSA	(P)	1979	40000	BW	PI	9	N	6716
FSA	(P)	1965	20000	BW	PI	8	N	6715

TETON - 30099(ZS)

Square Mile Land Area: 2310

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .500GB
NAIP06		2006	2	NC	GT	198		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 2.165GB
NAIP05		2005	1	NC	GT	235		QQ
NAIP04	81	2004	2	NC	MR	1		CCM .103GB
NAIP04		2004	2	NC	GT	196		QQ
NAPP3	100	2002	40000	BW			N	
NAPP2	100	1995	40000	BW			N	
NDOP	100	1995	1	BW	MR	1		CCM
NAPP1	100	1990	40000	BW	SI	2	Y	PARTIALLY RECTIFIED
NHAP1	100	1984	60000	CIRP			N	
FSA	(P)	1978	40000	BW	PI	11	N	6720 A&B
FSA	(P)	1966	20000	BW	PI	10	N	6719
FSA	(P)	1957	20000	BW	PI	10	N	6718

TOOLE - 30101(ZQ)

Square Mile Land Area: 1965

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .343GB
NAIP06		2006	2	NC	GT	181		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.372GB
NAIP05		2005	1	NC	GT	181		QQ
NAIP04	99	2004	2	NC	MR	1		CCM .082GB
NAIP04		2004	2	NC	GT	180		QQ
NAPP3	93	2002	40000	BW			N	
NAPP2	100	1995	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	2	Y	
NDOP	100	1991	1	BW	MR	1		CCM
NHAP1	100	1984	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	9	N	6723
FSA	100	1966	20000	BW	PI	11	N	6722 A&B
FSA	100	1957	20000	BW	PI	8	N	6721

TREASURE - 30103(DIT)

Square Mile Land Area: 997

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .266GB
NAIP06		2006	2	NC	GT	101		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.140GB
NAIP05		2005	1	NC	GT	110		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .062GB
NAIP04		2004	2	NC	GT	111		QQ
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NDOP	100	1996	10	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	DI	1	Y	
NHAP1	100	1981	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	8	N	6726
FSA	(P)	1968	20000	BW	PI	4	N	6725
FSA	100	1957	20000	BW	PI	6	N	6724

VALLEY - 30105(NC)

Square Mile Land Area: 5104

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .992GB
NAIP06		2006	2	NC	GT	458		QQ
NAIP05	100	2005	1	NC	MR	2		CCM 4.365GB
NAIP05		2005	1	NC	GT	469		QQ
NAIP04	11	2004	2	NC	MR	1		CCM .033GB
NAIP04		2004	2	NC	GT	50		QQ
NAPP2	100	1996	40000	BW	DI	3	Y	
NDOP	100	1996	1	BW	MR	2		CCM
NAPP1	100	1991	40000	BW	SI	5	Y	
NRCS	(P)	1990	32000	CIRP	LI	3	N	12353
NHAP1	100	1985	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	26	N	6729 A-C

FSA 100 1969 40000 BW PI 21 N 6728 A-C
 FSA 100 1959 20000 BW PI 21 N 6727 A-C

WHEATLAND - 30107(DWY)

Square Mile Land Area: 1425

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .259GB
NAIP06		2006	2	NC	GT	137		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 1.096GB
NAIP05		2005	1	NC	GT	141		QQ
NAIP04	100	2004	2	NC	MR	1		CCM .073GB
NAIP04		2004	2	NC	GT	144		QQ
NDOP	100	1997	1	BW	MR	1		CCM
NAPP2	100	1996	40000	BW			N	
NAPP1	100	1991	40000	BW	DI	1	Y	
NHAP1	100	1986	60000	CIRP	SI	3	Y	
NRCS	100	1979	40000	BW	PI	9	N	6732
FSA	(P)	1970	20000	BW	PI	6	N	6731
FSA	(P)	1962	20000	BW	PI	6	N	6730

WIBAUX - 30109(AZL)

Square Mile Land Area: 891

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .222GB
NAIP06		2006	2	NC	GT	97		QQ
NAIP05	100	2005	1	NC	MR	1		CCM .888GB
NAIP05		2005	1	NC	GT	100		QQ
NAIP04	24	2004	2	NC	MR	1		CCM .014GB
NAIP04		2004	2	NC	GT	24		QQ
NDOP	100	1996	1	BW	MR	1		CCM
NAPP2	100	1995	40000	BW			N	
NAPP1	100	1991	40000	BW	SI	2	Y	
NHAP1	100	1980	60000	CIRP			N	
FSA	100	1979	40000	BW	PI	6	N	6737
FSA	100	1970	40000	BW	PI	6	N	6736
FSA	100	1964	20000	BW	PI	6	N	6735
FSA	100	1955	20000	BW	PI	4	N	6734

YELLOWSTONE - 30111(ZW)

Square Mile Land Area: 2666

County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES SCL	BAND FILM	FMT	QTY	RA	REMARKS
NAIP06	100	2006	2	NC	MR	1		CCM .714GB
NAIP06		2006	2	NC	GT	252		QQ
NAIP05	100	2005	1	NC	MR	1		CCM 3.145GB
NAIP05		2005	1	NC	GT	261		QQ
NAIP04	100	2004	2	NC	MR	2		CCM .146GB
NAIP04		2004	2	NC	GT	264		QQ
NAPP2	100	1996	40000	BW			N	
NDOP	100	1996	1	BW	MR	1		CCM
NAPP1	100	1991	40000	BW	DI	2	Y	

NHAP1	100	1981	60000	CIRP			N	
NRCS	100	1979	40000	BW	PI	14	N	6741 A&B
FSA	100	1972	40000	BW	PI	14	N	6740 A&B
FSA	100	1966	20000	BW	PI	15	N	6739 A&B
FSA	100	1957	20000	BW	PI	13	N	6738 A&B

YELLOWSTONE NATIONAL - 30113() Square Mile Land Area: 269
 County FSA Office: <http://offices.sc.egov.usda.gov/locator/app>

PROG	%COV	YEAR	RES	BAND	SCL	FILM	FMT	QTY	RA	REMARKS
NAIP06		2006	2	NC	GT			10		QQ
NAIP05	100	2005	1	NC	MR			1		CCM 1.528GB
NAIP05		2005	1	NC	GT			51		QQ
NAPP2	100	1998	40000	BW					N	
NAPP1	100	1989	40000	BW					N	
NHAP1	100	1983	60000	CIRP					N	

EXHIBIT III-8

SECTIONALIZING AERIAL PHOTOGRAPHS

Materials. The following materials were necessary to sectionalize aerial photographs by hand:

- orthophotoquads with land lines
- USGS topographic maps
- GLO plats (General Land Office)
- proportional dividers and regular dividers
- straight edge or ruler
- red colored pencils or pens
- gum eraser or solvent
- 2" x 4" adhesive labels
- 4" grid and other necessary grids
- rapidograph marking pens and ink

Procedure. Sectionalizing is a process that requires locating section corners on a known data source, such as a topographic map or orthophotoquad, and transferring them onto aerial photographs.

Aerials should be sectionalized in numerical order (exposure number) within each roll number. By sectionalizing aerials in numerical order, five to six section corners of one aerial will overlap on the next aerial. Overlapping section corners can be easily transferred and are a good starting point when beginning the sectionalizing of a new aerial photograph.

Orthophotoquads with land lines should be used as the data source for determining known section corner locations. If an orthophotoquad is not available, use topographic maps and GLO's, or FSA soil survey aerial photos that have already been sectionalized.

When orthophotoquads are used, visual interpretation between the orthophotoquad and aerial is the best method for locating section corners. Proportional dividers should be used to approximately locate each section corner. Due to the different percent distortion of the two maps, proportional dividers will not be totally accurate. A four-inch grid may be helpful in approximating section corners once one of the four corners has been determined.

The outer perimeter of the aerial photograph should generally not be sectionalized due to a high percent of distortion. Mountainous country containing no apparent irrigable land should only be sectionalized as needed, or if section corners exist on the orthophotoquad.

Tracts of unsurveyed terrain appear on topographic maps and orthophotoquads as areas with no land lines. Corresponding areas on the aerial photographs can be left unsectionalized.

Section corners should be drawn on the aerial photographs in the same location

and configuration indicated on the orthophotoquad or topographic map. A red pencil and straight edge may be used for drawing section corners. For a permanent record, the section corners should be inked using a rapidograph marking pen.

The section number should be written in the center of each section on the aerial photo. Major streams, creeks, rivers, lakes, and reservoirs should be labeled according to the standardized source name list. It is suggested that this labeling be done in red pencil or ink. Care should be taken that important features on the aerial photograph are not obscured.

The name of the orthophotoquad or USGS topographic map used to sectionalize the aerial may be printed at the top of the aerial for easy cross reference. The adjacent photo numbers may be placed on the sides of the photo for easy reference.

A 2" x 4" adhesive label may be made for each aerial photograph listing the township, range, and sections for each county on the photograph. Place it in the upper right hand corner under the photo number. An example label is:

T4S	R2E	MA
Section 34, 35, 36		
T5S	R2E	MA
Section 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16		

Make a label for each county appearing on an aerial photograph. It is suggested that the labels be printed in black ink with a rapidograph pen or typed.

EXHIBIT III-9

**WATER RESOURCE SURVEY AERIAL PHOTOGRAPHY
BY COUNTY IN EACH REGIONAL/UNIT OFFICE**

	COUNTY	DATE	SCALE (")	COMMENTS
Billings	Stillwater	1941	2.9	
		1954	4.0	Not Sectionalized
		1962	4.0	Not Sectionalized
	Big Horn	1939	2.9	
	Carbon	1962	2.9	
	Treasure	1947	2.0	
		1950	2.0	
	Yellowstone	1966	4.0	
	Sweetgrass	1954	8.0	Incomplete
	Fallon	1944	2.0	
	Rosebud	1944	2.0	
	Carter	1944	2.0	
	Prairie	1968	4.0	
	Custer	1950	8.0	
	Tongue River	1967	4.0	
	Powder River	1967/68	4.0	
		1944	2.0	
Bozeman	Park	1949	2.0	
	Gallatin	1947	2.0	
	Madison	1947	2.0	
Glasgow	Valley	1959	3.0-8.0	Two Full Sets
	Phillips	1959	3.0	
	Sheridan	1967	4.0	
	Roosevelt	1967/1949	4.0	Two Full Sets
	Daniels	1959	4.0	
	Richland	1967	4.0	
	Dawson	1967	4.0	
	McCone	1965/56/57	4.0	
	Garfield	1968/1958	4.0	
	Wibaux	1951	2.0	
Havre	Blaine	1956/1960	3.0	
	Choteau	1956/1960	3.0	
	Glacier	1956/1960	3.0	
	Hill	1956/1960	3.0	
	Liberty	1956/1960	3.0	
	Pondera	1956/1960	3.0	
	Teton	1956/1960	3.0	
	Toole	1956/1960	3.0	
Helena	Deer Lodge	1947	2.0	Full Coverage
	Powell	1953	2.0	Full Coverage
	Broadwater	1944	2.0	Full Coverage

	COUNTY	DATE	SCALE (")	COMMENTS
Helena (cont.)		1947	2.0	Full Coverage
	Beaverhead	1955	4.0	Full Coverage
		1965	4.0	Full Coverage
		1973	4.0	Full Coverage
	Silver Bow	1947	2.0	Full Coverage
	Lewis & Clark	1938	2.0	Full Coverage
	Jefferson	1947	2.0	Full Coverage
Kalispell	Lake	1955	2.0	Full Coverage
	Flathead	1954/55/61	2.68	Full Coverage
	COUNTY	DATE	SCALE (")	COMMENTS
	Sanders	1963/64	4.0	Full Coverage
	Lincoln	1954/61	2.68	Full Coverage
Lewistown	Fergus	1953/62	4.0	Good Coverage
	Judith Basin	1950/57	3.168	Not Sectionalized
	Wheatland	1947	2.0	Good Coverage
	Petroleum	1954/68	4.0	Good Coverage
	Meagher	1947/54	2.0	Fair Coverage
	Cascade	1950	2.0	Good Coverage
	Golden Valley	1947	2.0	Fair Coverage
	Musselshell	1947	2.0	Poor Coverage
Missoula	Ravalli	1955	2.0	Full Coverage
	Granite	1947/48	2.0	Full Coverage
	Missoula	1934/38/40/55	2.0	Full Coverage, but disorganized
	Mineral			No Imagery in Office

EXHIBIT IV-3

IDENTIFICATION CODES

WATER RIGHT CODES USED IN PAST

A	Late claim
B	Late claim
C	certificate issued
D	declaration (Powder River)
E	exempt existing rights
F	terminated Powder River Declaration
G	change of water right—recorded water right referenced
H	change of water right—no water right referenced
I	terminated change application or authorization
J	incomplete claim—data not used
K	acknowledgment issued
L	application for reservation
M	approved reservation
N	denied new appropriation application
O	withdrawn statement of claim
P	provisional permit issued
Q	temporary permit issued
R	completed plan portion of approval reservation
S	basin closure
T	terminated new appropriation file
U	federal or Indian reserved claim
V	severed, sold or leased water right
W	statement of claim to water used prior to July 1, 1973
X	interstate transfer statement of claim
Y	pending new appropriation file
Z	'subsidiary' irrigation district claim

Example: 42M-W333333-00 "W" was the ID status code.

ORIGIN OF WATER RIGHT CODE

D	decree (SB76)
F	filed (SB76)
N	new use of water (on or after July 1, 1973)
P	Powder River adjudication
R	federal reservation (SB76)
S	secretarial right (SB76)
U	use right (SB76)

**EXHIBIT IV-4
POINT OF DIVERSION ADDENDUM**

BASIN _____ CLAIM NO. _____

POINT OF DIVERSION INFORMATION

POD ID	Diversion Means	Pump Size	Primary POD ID	Trans	POD Type	Govt. Lot	Qtr Sec	Sec	TWP	RGE	County	POD Origin	UT Y/N	Source	Ditch Name

**EXHIBIT IV-4 (cont.)
POINT OF DIVERSION ADDENDUM**

BASIN _____ CLAIM NO. _____

POINT OF DIVERSION INFORMATION

POD ID	Diversion Means	Pump Size	Primary POD ID	Trans	POD Type	Govt. Lot	Qtr Sec	Sec	TWP	RGE	County	POD Origin	UT Y/N	Source	Ditch Name

SUBDIVISION/CERTIFICATE OF SURVEY INFORMATION

POD ID	LOT/TRACT	BLOCK	SUBDIVISION NAME	CERTIFICATE NAME/TYPE	CERT. NO

WELL INFORMATION

POD ID	DEPTH	STATIC LEVEL	CASING DIAMETER	TEST RATE	FLOWING

EXHIBIT IV-4 (cont.)
PLACE OF USE ADDENDUM

BASIN _____ CLAIM NO. _____

PLACE OF USE INFORMATION

[illegible]

**EXHIBIT IV-4 (cont.)
PLACE OF USE ADDENDUM**

BASIN _____ CLAIM NO. _____

PLACE OF USE INFORMATION

Parcel ID	ACRES	POU ORIGIN	GOVT LOT	QTR SEC	SEC	TWP	RGE	COUNTY

SUBDIVISION/CERTIFICATE OF SURVEY INFORMATION

LOT/TRACT	BLOCK	SUBDIVISION NAME	CERTIFICATE NAME/TYPE	CERT. NO

**EXHIBIT IV-4 (cont.)
RESERVOIR ADDENDUM**

BASIN _____ CLAIM NO. _____

NAME	ON/OFF	POD ID	ORIG CAP	MAX DEPTH	DAM HT	SURFACE AREA	ORIGIN	GOVT LOT	QTR SEC	SEC	TWP	RGE	COUNTY

**EXHIBIT IV-4 (cont.)
OWNER ADDENDUM**

BASIN _____ CLAIM NO. _____

LAST NAME	FIRST NAME	MI	SUFFIX	CUSTOMER TYPE

ADDRESS:

ADDRESS:

CITY	STATE	ZIP

EXHIBIT IV-6

OWNER NAME/ADDRESS STANDARDS

Last Updated by New Appropriations: May 3, 2006

INTRODUCTION

Maintaining the integrity of a large database is a difficult task. There are thousands of duplicate records in the DNRC water right database simply because the owner name or address was not standardized.

To achieve consistency, please standardize water right owner names and addresses. Contact the Central Office if you are uncertain how to standardize a name.

GENERAL INFORMATION

Always use the most complete name available. Remember to compare the name given with the signature.

The post office delivers mail to the address listed immediately above the city state zip line. If no box or street address is given, code a "--" in address line 1 and code the city, state, and zip. Do not use "General Delivery" in the address unless it is specifically stated on the application.

If a standardization applied by the department is questioned by the public, explain the database is limited and standards have to be applied. However, the original documentation is on file. If the public is insistent, add an ON (formatted) remark to the file.

EXAMPLES:

- ON Owner name was modified for computer entry. The application was filed in the name of 7-7 Ranch.
- ON Owner name was modified for computer entry. The application was filed in the name of Pierce Family Ltd. Partnership.
- ON Owner name was modified for computer entry. The application was filed in the name of Henry Farmer Living Trust.

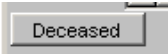
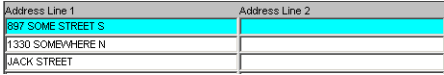
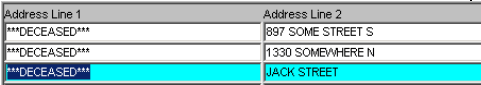
Use caution when standardizing an owner name or address. Do not mistake two owners as one. For instance, Robert L. Larson, Havre MT and Robert L. Larson, Billings MT are two different people. If in doubt, contact the appropriator or DO NOT change.

EXHIBIT IV-6 (cont.)

ORACLE OWNER NAME QUERY

1. Select Inquiry – Owner/Contact from the Menu Bar.
2. The Inquiry Screen is already in Query Mode. See the status bar on the bottom of the screen “Enter a query; Press F8 to execute, Ctrl + Q to cancel”.
 - a. Enter the whole Last name.
 - b. Or, enter part of the name and use the percentage sign as a wild card (%).
 - c. Or enter the whole last name with part of the first name and the wild card (%).
3. Press F8 to execute the query
4. All records with the values that match or contain the criteria entered will be returned.
5. To perform a new search, position the cursor in the Last Name/Corporation field
6. Press F7 to activate the query mode.
7. Repeat steps 2a through 3.
8. If no matches were found, the status bar will display “Query caused no records to be retrieved. Re-enter”.
9. To continue searching when no records are returned.
10. Enter a new name or partial name per 2a through 2c.
11. Press F8 to execute the new query.

EXHIBIT IV-6 (cont.)

OWNER NAME TYPE	EXAMPLE	CODE AS
OWNER NAME STANDARDS		
AGENT NAMES Code in the address line one.	The Phoenix Foundation Macgyver, Agent	Phoenix Foundation Macgyver, Agent
COMPANY, INCORPORATED, AND RANCHES - INDIVIDUAL NAMES Code as a corporation Don't code the phrase "A Montana Corporation." Use commas between first and last names. No commas if just last names are used.	Billie Bassett Company Bornhoft Enterprises, a Montana Corporation Gayle Phillips and Associates Bassett, Wiedeman and Rolf Larry Holman and Son Ranch Kool Limited	Bassett, Billie Co Bornhoft Enterprises Corp Phillips, Gayle & Assoc Bassett Wiedeman & Rolf Holman, Larry & Son Ranch Kool Ltd
COMPANY AND INCORPORATED - NO LAST OR FIRST NAME	Overcast's Fashions Inc. Bill's OK Hardware 4 B's Inn M.P. & E. Rental & Supply	Overcasts Fashions Inc Bills OK Hardware Four B's Inn M P & E Rental & Supply
COUNTIES AND SCHOOL DISTRICTS Code the county name followed by "county." The county and school district number must be recorded as the owner. If available, code the individual school on the first address line	Custer County Sanitarian Sheridan County Parks and Recreation Helena Capital High School Hellgate Elementary School District No. 4	Custer County Sanitarian Sheridan County Parks & Recreation Lewis & Clark County School Dist #3 Helena Capital High School Missoula County School Dist #4 Hellgate Elementary School
DBA Never Code "DBA"	Katie & Tom Jones dba Jones Coupon Association	Jones Coupon Assn % Katie & Tom Jones
DECEASED Press the  button. This button will automate the procedure for marking a customer's address(s) and status as deceased. All data will be shifted over to the appropriate field. Save your changes (F10)		

OWNER NAME TYPE	EXAMPLE	CODE AS
DOUBLE FIRST NAME If a double first name is entered onto the form and the signature reflects the double name, code the full name. If room is not available in the first name field, code the second part of the first name as an initial. If the name entered on the form is not reflected in the signature, code as first name and middle initial.	Betty Lou Boop JohnPaul S. Jones (Entered on form and reflected on signature.) Julie Diane Douty (Entered on form but not reflected in signature.) Beatrice Pearl Ann Palmer (Entered on form and reflected in signature but first name exceeds spaces available)	Boop Betty Lou Jones Douty Julie D Palmer
ET AL Never Code "ET AL"	Bosch, Kuhr, Dugdale Et al Bill Monroe Et al	Bosch Kuhr Dugdale Monroe William
FEDERAL AND STATE AGENCIES The following is a list of federal agencies. Code according to this list. If the agency you must code is not on this list, contact the Central Office for coding instructions.	USA (DEPT OF AGRICULTURE FARM SERVICE AGENCY) USA (DEPT OF AGRICULTURE FARMERS ADMINISTRATION) USA (DEPT OF AGRICULTURE FOREST SERVICE) USA (DEPT OF AGRICULTURE RESEARCH SERVICE) USA (DEPT OF AGRICULTURE VETERINARY SERVICE) USA (DEPT OF ARMY CORP OF ENGINEERS) USA (DEPT OF DEFENSE MILITARY AFFAIRS) USA (DEPT OF ENERGY) USA (DEPT OF HEALTH & HUMAN SERVICES) USA (DEPT OF HOUSING & URBAN DEVELOPMENT) USA (DEPT OF INTERIOR BUREAU OF INDIAN AFFAIRS) USA (DEPT OF INTERIOR BUREAU OF LAND MGMT) USA (DEPT OF INTERIOR BUREAU OF RECLAMATION) USA (DEPT OF INTERIOR FISH & WILDLIFE SERVICE) USA (DEPT OF INTERIOR GEOLOGICAL SURVEY) USA (DEPT OF INTERIOR NATIONAL PARK SERVICE) USA (DEPT OF JUSTICE) USA (DEPT OF TRANSPORTATION) USA (FEDERAL AVIATION ADMINISTRATION) USA (GENERAL SERVICES ADMINISTRATION) USA (INDIAN SERVICE) USA (MARSHALL SERVICE) USA (POSTAL SERVICE) USA (PUBLIC HEALTH SERVICE) USA (SMALL BUSINESS ADMINISTRATION) USA (VETERANS ADMINISTRATION)	

OWNER NAME TYPE	EXAMPLE	CODE AS
The following is a list of State of Montana agencies. Code according to this list. If the agency has a specific unit, code the unit on the first address line. If the state agency you must code is not on this list, contact the Central Office for coding instructions.	MONTANA, STATE OF MONTANA, STATE OF BOARD OF LAND COMMISSIONER MONTANA, STATE OF DEPT OF ADMINISTRATION MONTANA, STATE OF DEPT OF COMMERCE MONTANA, STATE OF DEPT OF CORRECTIONS MONTANA, STATE OF DEPT OF ENVIRONMENTAL QUALITY MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARK MONTANA, STATE OF DEPT OF HEALTH & HUMAN SERVICES MONTANA, STATE OF DEPT OF JUSTICE MONTANA, STATE OF DEPT OF MILITARY AFFAIRS MONTANA, STATE OF DEPT OF NATURAL RESOURCES MONTANA, STATE OF DEPT OF TRANSPORTATION MONTANA, STATE OF HISTORICAL SOCIETY MONTANA, STATE OF UNIVERSITY SYSTEM Bureau of Mines and Geology Montana Tech. Montana State University Northern Montana College University of Montana Western Montana College MONTANA, STATE OF UNIVERSITY FOUNDATION INC MONTANA, UNIVERSITY OF FOUNDATION	
GUARDIANSHIPS Code the guardianship as the owner. Code the guardian in the first address line.	Janine Kay Olson, Guardianship Sarah Olson, Guardian	Olson, Janine K Guardianship Sarah Olson, Guardian
HYPHENATED OR SEPARATED LAST NAMES If capitals are used within the last name, leave a space before the capital. If an apostrophe is used, leave a space but do not code the apostrophe.	Dick Van Dyke Paddy St. Patrick MaryAnn Mc Michael Alfred P. D'Atabe Rosie O'Neil Pepe Le'Pew Mac Millan Welding St. Paul's Methodist Church	Van Dyke St Patrick Mc Michael D Atabe O Neil Le Pew Mac Millan Welding St Pauls Methodist Church Richard Patrick MaryAnn Rose Pepe
JUNIOR/SENIOR/III Code Jr or Sr or I, II, etc. in the suffix field.		
MAIDEN AND MARRIED NAME If there is a hyphen (-), consider it one last name. Code as an "I" unless it exceeds the available space in the last name field, then code as a "C." If there isn't a hyphen, code the first of the two names as an initial.	Barbara Browning Cowan Michelle Badavinac-Kantorowicz	Cowan Badavinac-Kantorowicz, Michelle
MIDDLE INITIALS (use whenever possible) Always use the most	Pamela J. Weinmeister OR	Weinmeister

OWNER NAME TYPE	EXAMPLE	CODE AS
complete name available. Use middle initials whenever possible. <u>Always check the signature.</u>	Pam Weinmeister	
ONLY ONE INITIAL GIVEN If only one initial of an appropriator's first name is given, contact him for a full name or at least for another initial.	A. Martinez	Martinez OR Martinez
MRS Code in parenthesis immediately after the first name. Code only if her name is not given or is not available. Ideally, contact should be made to obtain her first name.	Mrs. Dennis Miller	Miller Dennis (Mrs) OR Miller Patti
NICKNAMES Watch for common nicknames - If unsure, contact the owner for proper name. Caution: Sometimes an apparent nickname is really a proper given name. For example, Jim or Jimmy may not be James.	Hal Peck Bob Arrington Rich Moy Bill Uthman Dick Russell Buck Jones	Peck Arrington Moy Robert Uthman Russell Jones Richard William Richard Buckwheat
NUMBER USED AT BEGINNING OF OWNER NAME Spell out the number.	99 Bottle Company 4 B's Inn 7 - 7 Ranch	Ninety Nine Bottle Co Four B's Inn Seven Bar Seven Ranch
NUMBER WITHIN AN OWNER NAME If a number is used within the name, code as given.	Phillips 66 Oil Company Mobile One Inc.	Phillips 66 Oil Co Mobil One Inc
PARTNERSHIPS Do not code the type of partnership (Limited, Undivided, etc} If "partner" is listed, drop it off.	Pierce Family Limited Partnership Smith and Smith Partnership Grumpy and Sneazy Partners Santa Claus and Partners	Pierce Family Partnership Smith & Smith Partnership Grumpy and Sneazy Partnership Santa Claus Partnership
THE If "the" is used at the beginning of a name, do not code.	The Montana Power Company The Little Church in the Wildwood	Montana Power Co Little Church In The Wildwood
TITLES -- ATTORNEY, DOCTOR, OFFICERS, ETC. Titles should never be coded.	Terry Scow, Attorney Dr. Illa Phillips Tony A. Clark, DDS General Douglas A. MacArthur	Scow Phillips Clark Mac Arthur Terry Illa
TOWNS, CITIES, AND COUNTIES	Town of Tim Buck Two City of Billings	Tim Buck Two, Town of Billings, City of

OWNER NAME TYPE	EXAMPLE	CODE AS
Code with the town or city name first, followed by a comma and then "town of" or "city of."		
TRUSTS not code the type of trust (living, revocable, unrevocable, lovable, etc. Do not code the word "trustee" on the owner line. Use % for trustee name.	Shirley Jones Living Trust c/o 1st National Bank, Personal Representative Kadidilhopper Family Trust George A. Riddick, Revocable Trust Jack and Jill Hill, Revocable Trust in Common Mickey & Minnie Mouse, Trustee James J & Marge Jeff, as Trustees - a revocable living trust	Jones, Shirley Trust % 1st National Bank, PR Kadidilhopper Family Trust Riddick, George A Trust Hill, Jack Trust Hill, Jill Trust Mouse, Mickey % Trustee Mouse, Minnie % Trustee Jeff, James J Trust Jeff, Marge Trust
TWO SEPARATE PARTIES - SAME ADDRESS Code as two separate owner/address records.	Donald D. Duck & Porky P. Pig Cartoon Court Disneyland, CA 12345	Duck Cartoon Court Disneyland CA 12345 Pig Cartoon Court Disneyland CA 12345

ADDRESS STANDARDS

Always code the mailing address in the address line that will print immediately above the City, State and Zip Code.

ADDRESS TYPE	EXAMPLE	CODE AS
ABBREVIATIONS USED BY AN OWNER If unsure of an abbreviation used by an owner, contact the owner or code the abbreviation as shown.	S. S. Route (could mean South Star Route or South Side Route)	S S Rt
APO AND FPO Address formats for overseas military mail. If questions arise, call the Central Office. The military regional area mailing port is known as the gateway.	Full name and grade PSC Box number APO/ Gateway/ APO 9 digit zip	Swartzkoff, Norman General 901 Armored Division 2 Battalion APO San Francisco CA 96328-5000
BUILDING NAMES Code on the first address line.	PO Box 2269 1st National Bank Building, 7th Floor 333 Central Avenue Great Falls, Montana 59403-2269	1st Natl Bank Bldg, 7th Floor PO Box 2269 Great Falls MT 59403-2269
MILITARY-OVERSEAS	The last line of the address must contain the APO or FPO designation along with a two character abbreviation and the zip code or zip+4. AE = Military in Europe, Middle East, Africa & Canada AP = Pacific AA = Americas excluding Canada Examples: APO AE 09001 FPO AP 96606-2783 APO AA 34035-4198	
MILITARY-DOMESTIC	Use an approved city name, along with the two character state abbreviation and the zip code or zip+4 Example: Minot AFB ND 58704	

ADDRESS TYPE	EXAMPLE	CODE AS
CANADA	<p>Place the city name, two character abbreviation for the province, and the postal code in address line 2.</p> <p>Alberta = AB British Columbia = BC Manitoba = MB New Brunswick = NB Newfoundland = NF Northwest Territories = NT Nova Scotia = NS Ontario = ON Prince Edward Island = PE Quebec = PQ Saskatchewan = SK Yukon Territory = YT</p> <p>The full name of the country, no abbreviations, must be coded in the Foreign Zip field.</p> <p>Example: Address Line 1: 1010 Clear Street Address Line 2: Ottawa ON K1A0B1 Address Line 3: Foreign Zip: Canada</p>	
INTERNATIONAL	<p>The last line of the address must show only the country. Do not place postal codes or zip codes in this field.</p> <p>Example: Address Line 1: Hartmannstrasse 7 Address Line 2: 5300 Bonn 1 Address Line 3: Foreign Zip: Germany</p>	
CITY NAMES Do not abbreviate. Spell city names in their entirety.	Wht. Slpr. Springs GF's Coeur D'Alene	White Sulphur Springs Great Falls Coeur D'Alene
CITY OR STATE USED IN STREET ADDRESS Spell out the city or state when used in the address as the primary street name.	121 Mont. Avenue 1420 Penn. St.	121 Montana Ave 1420 Pennsylvania St
CREEK, RIVER, SREET OR AVENUE USED IN STREET ADDRESS Do not abbreviate when used in street addresses.	17 Camp Cr. Road 44 Ninemile River Drive 187 St Road 2035 Ave D	17 Camp Creek Rd 44 Ninemile River Dr 187 Street Rd 2035 Avenue D
MULTIPLE ADDRESSES Code the most complete mailing	Box 1991 1776 July 4th St. Independence, PA 11111	1776 July 4th St PO Box 1991 Independence

ADDRESS TYPE	EXAMPLE	CODE AS
address immediately above the city state zip line. If a street address and a box address are given, code the street address in the 1st address line and the box address on the second address line.	<p>Star Rt. Box 25 Canyon Creek Rd. Helena, MT 59601</p> <p>Ann Smith Trust 1st National Bank, Trustee PO Box 2269 1st National Bank Building, 7th Floor 333 Central Avenue Great Falls, MT 59403-2269</p>	<p>PA 11111</p> <p>Canyon Creek Rd HC Box 25 Helena MT 59601</p> <p>Smith, Ann Trust % 1st National Bank, Trustee PO Box 2269 Great Falls MT 59403-2269</p>
NORTH, SOUTH, EAST OR WEST Always abbreviate whether used in a street address or as a direction. Exception: If street address name is a direction, do not abbreviate.	<p>Jordon Road East East Shore Dr North Street N Street Southwest St. Southwest North Eastside Loop</p>	<p>Jordon Rd E E Shore Dr North St N St Southwest St SW N Eastside Loop</p>
PO BOX, ROUTES AND HIGHWAY CONTRACT ROUTES Do not spell out. Use PO for Post Office boxes, RR for rural routes, and HC for other routes. Code the route first, then the box number if given.	<p>Box 54 Drawer 45 Box 44, Route 5 Box 1 Star Rt. HC 21 HC 19 Box 4 Rural Route 2 RFD Route 4</p>	<p>PO Box 54 PO Box 45 HC 5 Box 44 HC Box 1 HC 21 HC 19 Box 4 RR 2 RR 4</p>
TWO SEPARATE PARTIES - SAME ADDRESS	<p>Donald D. Duck & Porky P. Pig Cartoon Court Disneyland, CA 12345</p>	<p>Duck Donald D Cartoon Court Disneyland CA 12345</p> <p>Pig Porky P Cartoon Court Disneyland CA 12345</p>

EXHIBIT IV-6

OWNER NAME ABBREVIATIONS

ALWAYS ABBREVIATE

ADMINISTRATION ...	ADMIN
AND	&
ASSOCIATES	ASSOC
ASSOCIATION	ASSN
COMPANY	CO
CORPORATION	CORP
DEPARTMENT	DEPT
INCORPORATED	INC
JUNIOR	JR
LIMITED	LTD
PERSONAL REPRESENTATIVE	PR
SENIOR	SR
UNITED STATES	US
UNITED STATES OF AMERICA	USA

DON'T ABBREVIATE

BROTHERS
DISTRICT
PARTNERSHIP
TRUST
TRUSTEE

EXHIBIT IV-6

ADDRESS ABBREVIATIONS

ALWAYS ABBREVIATE

APARTMENT #1	APT 1	PARKWAY	PKWY
AVENUE	AVE	PLACE	PL
BOX	PO BOX	P.O. BOX	PO BOX
BUILDING	BLDG	ROAD	RD
BOULEVARD	BLVD	ROUTE	HC
DRAWER	PO BOX	RURAL ROUTE	RR
DRIVE	DR	SECOND STREET	2ND ST
EAST	E	SOUTH	S
FIRST STREET	1ST ST	SOUTHEAST	SE
FOURTH STREET	4TH ST	SOUTHWEST	SW
HIGHWAY	HWY	STREET	ST
HWY CONTRACT	HC	STAR ROUTE	HC
IN CARE OF	%	THIRD STREET	3RD ST
LANE	LN	WEST	W
NORTH	N		
NORTHEAST	NE		
NORTHWEST	NW		
NUMBER/NO	#		

DON'T ABBREVIATE

CIRCLE
CENTER
COURT
COUNTY
CREEK
GULCH
FORK
HOLLOW
LAKE
LIBRARY
LOOP
MOUNT
MOUNTAIN
NATIONAL
PLAZA
RIVER
ROOM
SQUARE
SUITE
TERRACE
TRAIL
TRAILER
VILLAGE
WAY

EXHIBIT IV-8

QUESTIONNAIRE COVER LETTER

(Use State of Montana Letterhead)

[DATE]

[NAME]

[ADDRESS]

[CITY, ST ZIP CODE+4]

RE: Statement of Claim No(s). 000000-00

Dear [CLAIMANT NAME]:

The Montana Water Court has begun the preliminary work necessary to issue a water right decree in Basin [BASIN ID and NAME]. At the request of the court, the Department of Natural Resources and Conservation (DNRC) staff is reviewing all water right claims in the basin for completeness and accuracy. Information gathered by DNRC will be sent to the Montana Water Court.

You can assist us in this review by completing the enclosed questionnaire. The questionnaire serves to gather additional facts and data regarding the status and operation of your water right as it existed **prior to 1973**. With the information you provide, a more complete record of your water right will be established.

A copy of the water right claim that had been submitted to the court is enclosed. It may be helpful to review it. After reviewing the claim, complete and return the questionnaire to the [LOCATION] Office by [DATE]. If you cannot return the questionnaire within that time period, please let me know.

If you have any questions or need assistance, contact me at [PHONE] or [EMAIL]. Thank you in advance for your cooperation.

Sincerely,

[NAME]

Water Resource Specialist

[LOCATION]

Enclosure

EXHIBIT IV-9

GENERAL CONTACT LETTER

(USE STATE OF MONTANA LETTERHEAD)

[DATE]

[NAME]

[ADDRESS]

[CITY, ST ZIP CODE + 4]

RE: Statement of Claim No(s). 000000-00

Dear [CLAIMANT NAME]:

The Montana Water Court has begun the preliminary work necessary to issue a water right decree in Basin [BASIN ID and NAME]. At the request of the court, the Department of Natural Resources and Conservation (DNRC) staff is reviewing all water right claims in the basin for completeness and accuracy.

Your water right claims in Basin [BASIN ID and NAME] are currently being examined. This review has raised some questions that cannot be answered from the information submitted with the claim. The enclosed review abstract reflects how your water right will appear in the decree unless we obtain additional information.

If additional information is not obtained, your water right may be issued in the water right decree with incorrect or inadequate information. This might make future efforts to assert and protect your water rights more difficult.

PLEASE CONTACT ME AT [PHONE] OR [EMAIL] BY [DATE] SO WE CAN MAKE ARRANGEMENTS TO GO OVER THE CLAIMS AND QUESTIONS.

Thank you for your time and cooperation.

Sincerely,

[NAME]

Water Resource Specialist

[LOCATION]

Enclosure

EXHIBIT IV-10

FINAL LETTER

(Use State of Montana Letterhead)

[DATE]

[NAME]

[ADDRESS]

[CITY, ST ZIP CODE + 4]

RE: Statement of Claim No(s). 000000-00

Dear [CLAIMANT NAME]:

Your water rights are very important!

On [DATE], a letter (copy enclosed) was sent to you with a request concerning your water right(s). The letter indicated that you needed to respond by [DATE]. As of today, a reply has not been received.

It is important you contact me at [PHONE] or [EMAIL] by [DATE]. If you do not respond by the date listed, your water right(s) will be processed with what appears to be incorrect or inadequate information. Based on this information, your water right(s) may not be correctly represented when the decree for this basin is issued.

Thank you for your time and cooperation.

Sincerely,

[NAME]

Water Resource Specialist

[LOCATION]

Enclosure

EXHIBIT IV-12

DNRC FIELD INVESTIGATION WORKSHEET

PART 1: GENERAL DATA

1. Water Right No(s): _____
Case No.: _____ Property
Address: _____

2. Claimant (in database): _____
A. Is current owner the same as claimant on claim?
____ Yes ____ No
B. If no, has a transfer been filed?
____ Yes ____ No
C. List current owner if different from claimant listed above:
Name(s): _____
Mailing Address: _____
City, ST Zip: _____
Phone: _____

3. Person contacted for investigation same as claimant?
____ Yes ____ No
Explain: _____

4. Person(s) accompanying investigator: _____

5. Individual interviewed: _____ Claimant _____ Other (specify below)
Name: _____
Address: _____
Relationship to land: _____ Landowner _____ Lessee _____ Other (explain):

6. Aerial Photographs and Maps:

EXHIBIT IV-12 (cont.)**PART 2: FIELD INVESTIGATION**

1. Source of water: _____

2. Purpose of use: _____

3. Points of Diversion and Means of Diversion:

QTR SEC	SEC	TWP	RGE	COUNTY	MEANS

Describe size, operational status, etc.:

4. Storage

A. Reservoir located off-stream (away from source)?

____ Yes ____ No

B. If yes, give location:

____ 1/4 ____ 1/4 ____ 1/4 Sec ____ TWP ____ N/S RGE ____ E/W ____ County

C. Total volume of pit: _____

Compute as follows:

Surface area (acres) ____ x maximum depth (ft) ____ x 0.5 = ____ acre-feet

Total volume of reservoir: _____

Compute as follows:

Surface area (acres) ____ x maximum depth (ft) ____ x 0.4 = ____ acre-feet

D. Dam Height: _____ Free Board: _____

E. Release other than spillway: ____ Yes ____ No

Release is ____ controlled ____ uncontrolled

Is release operational? ____ Yes ____ No

Describe:

F. Water has flowed over spillway: ____ Yes ____ No

G. Describe operation:

5. Means of conveyance to place of use:

_____pipeline _____ditch _____natural carrier _____other (explain):

Describe size, length, operational status, vegetation, etc.:

6. Place of Use (see map)

A. Brief description of system:

B. System operational? _____Yes _____No

Date of last use (month, day, year): _____

C. Method of irrigation:

_____ Flood
_____ Sprinkler
_____ Other

D. Type of Crops: _____Alfalfa _____Pasture _____Other (explain):

7. Runoff or released water returns to the same watercourse?

_____Yes _____No (explain):

8. Period of Use: From _____ to _____ inclusive of each year

9. Period of Diversion: From _____ to _____ inclusive of each year

A. What is the average number of hours water is diverted per day? _____

B. What is the average number of days water is diverted per year? _____

10. Flow rate

A. Claimed: _____

B. Guideline: _____

C. Observed: _____estimated: _____

_____Measured: _____

D. Comments:

11. Volume

A. Claimed: _____

B. Guideline: _____

C. Observed: _____estimated: _____

_____Measured: _____D.

Comments:

12. Supplemental to other rights: _____Yes _____No

Explain:

13. History of Development:

A. Original Development: _____Change _____Unknown_____

Additional comments (including reason for change and approximate dates):

B. Date development was started (if known):_____

C. Date development was completed (if known):_____

D. Date of first use (if known):_____

E. Priority date: _____

F. Date of Water Resources Survey: _____

Was this system operational? _____Yes _____No

G. Number of irrigated acres:

Claimed: _____

Water Resources Survey: _____

Observed: _____

Maximum in any one year:_____

Explain any differences:

14. Water supply comments:

15. General Comments:

A. Soils:

B. Topography:

C. Slope:

Investigator _____Date _____

EXHIBIT IV-14
GENERAL LOCATION MAP

1N10W 1N 9W

Point of Diversion

1S10W 1S 9W

Place of Use

2S10W 2S 9W

Field Investigation of 41D-92720
Divide-Kambich Co
Township 1 South, Range 9 & 10 West

0 1 2 4 Miles

1:100,000
Butte South, Montana

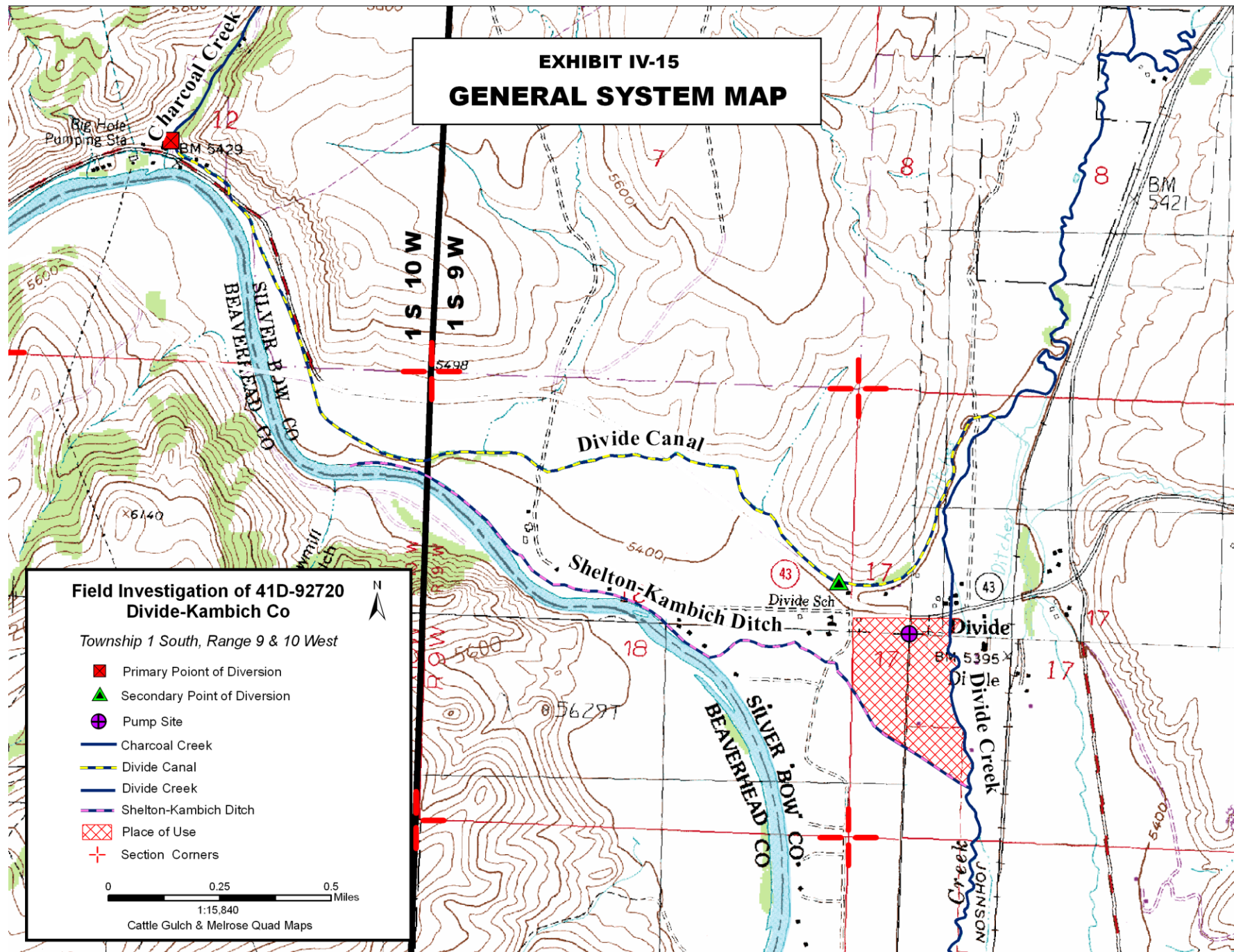
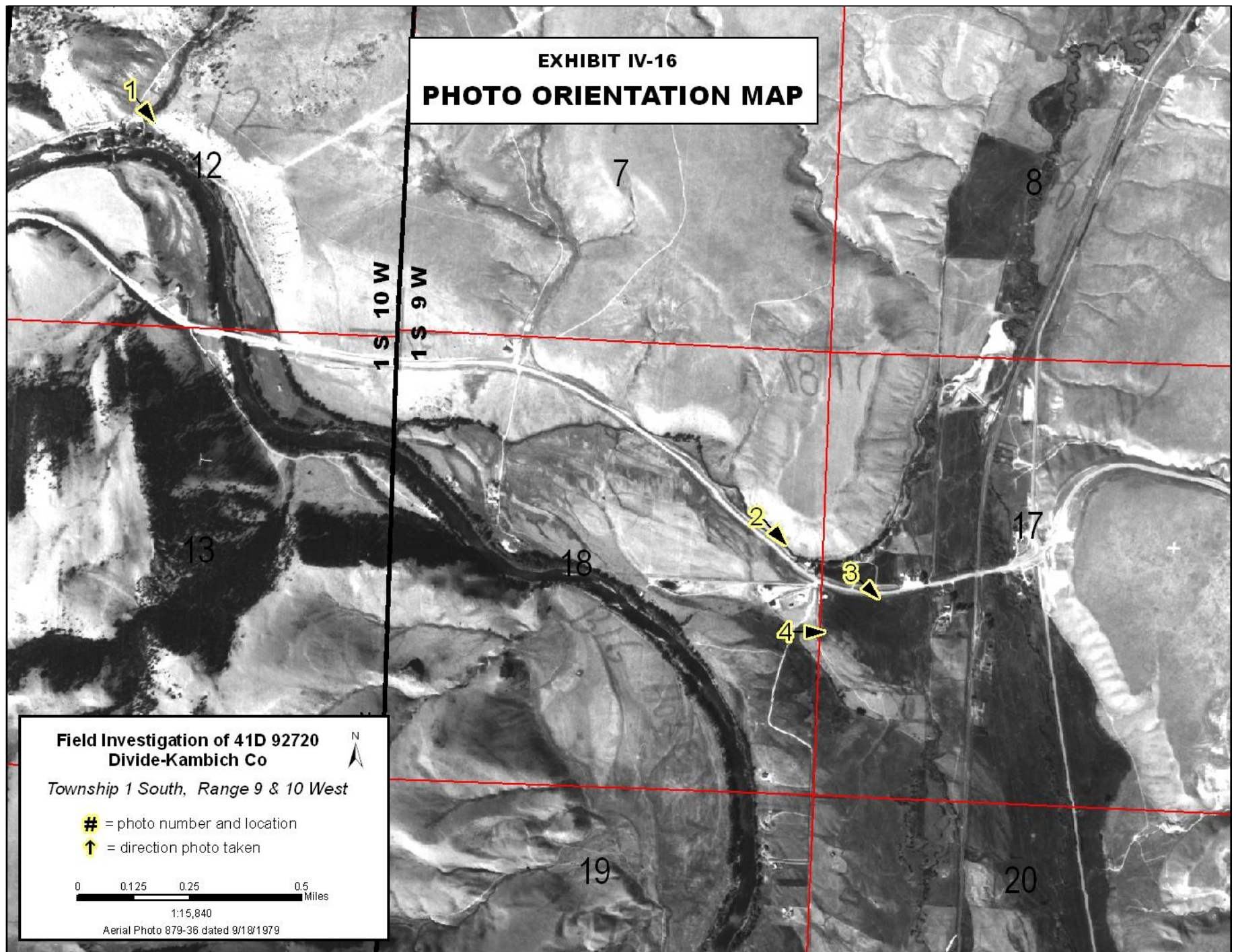


EXHIBIT IV-16
PHOTO ORIENTATION MAP



Field Investigation of 41D 92720
Divide-Kambich Co



Township 1 South, Range 9 & 10 West

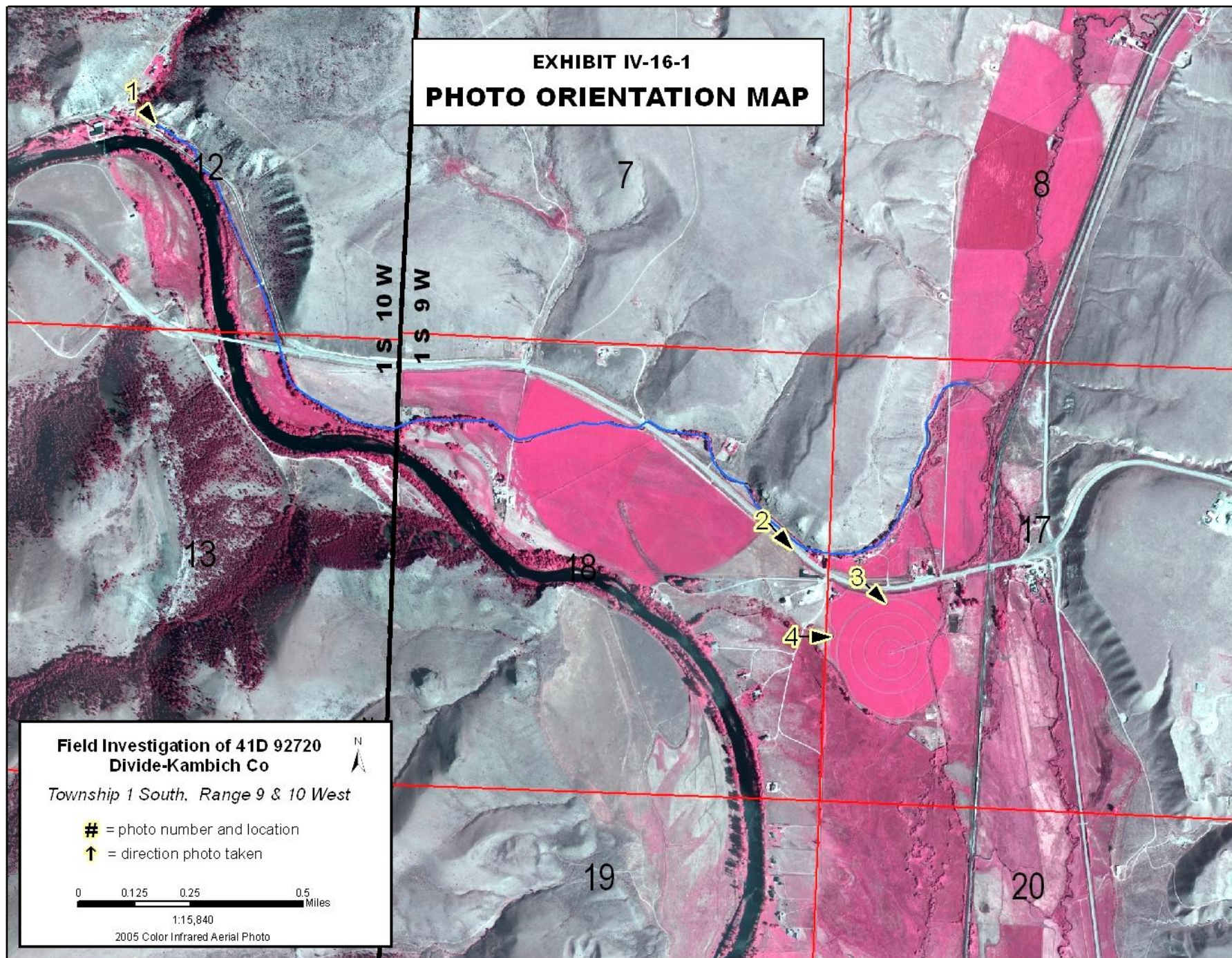
= photo number and location

↑ = direction photo taken

0 0.125 0.25 0.5
Miles

1:15,840

Aerial Photo 879-36 dated 9/18/1979



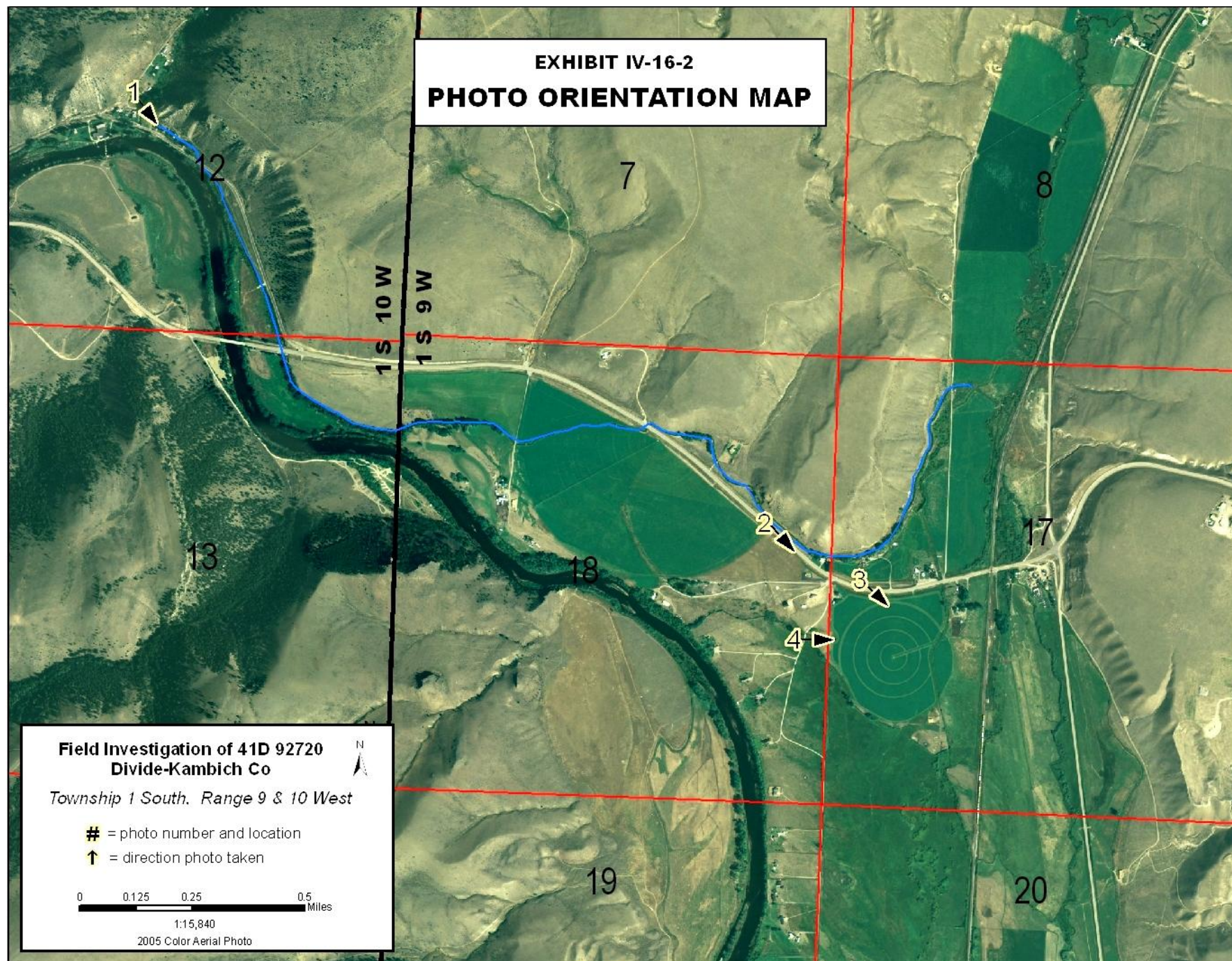


EXHIBIT IV-17

**FIELD INVESTIGATION PHOTOGRAPH MOUNTING
AND LABELING FORMAT**

Note: This information can be incorporated into a Microsoft Word document as part of the field investigation report.

Claim No. _____

INSERT PHOTOGRAPH

PHOTO NO.:
DIRECTION OF VIEW:
SUBJECT:

TAKEN BY:

DATE:

INSERT PHOTOGRAPH

PHOTO NO.:
DIRECTION OF VIEW:
SUBJECT:

TAKEN BY:

DATE:

EXHIBIT IV-18

FIELD INVESTIGATION REPORT EXAMPLES

(Use State of Montana Letterhead for first page)

TO: [NAME], [TITLE]
[LOCATION]

FROM: [NAME], Water Resource Specialist
[LOCATION]

APPROVED BY: [Name], [TITLE]
[LOCATION]

DATE: MM/DD/YYYY

CLAIM(S): 000000-00

CLAIMANT: [CLAIMANT NAME]

INTRODUCTION

1. Who assigned the field investigation, and when was it assigned, date conducted, and by whom?

Example 1. Pursuant to a MM/DD/YYYY order from the Montana Water Court, a field investigation of claim 41A 000000-00 was conducted on MM/DD/YYYY by [NAME] of the Department of Natural Resources and Conservation (DNRC).

2. Purpose of field investigation.

Example 1. The purpose of this investigation was to identify and quantify the place of use, flow rate, and volume as requested by the Water Court. In addition, other claimed items were field checked for accuracy and feasibility.

3. Sources of information used.

Example 1. This field inspection served as the primary source of data for the report. Other sources of information include the original claim file, USDA aerial photo [Number] dated MM/DD/YYYY, the [Name] USGS Quadrangle map (YYYY), the [YYYY] [NAME] County Water Resource Survey, and interviews with the claimant. In addition, Mr. Derrick of the Deep Drilling Company in Bozeman supplied flow rate information about the pump.

4. Describe any preliminary contact with the claimant to set up an appointment. List all persons present during the inspection.

Example 1. On MM/DD/YYYY, all parties involved were contacted by certified letter to set up an appointment (Figure____). Present during the investigation were John Q. Wateruser, the claimant; and Frank Speaks, his consultant. By prearrangement Conrad Barr and Robert Writ, attorneys for the claimant and objector respectively, were not present.

5. Closing paragraph to introduction.

Example 1. Information gathered pursuant to the Water Court's request for a field investigation is given below. Although the investigation was limited by the Water Court to certain items, other elements of the water right have been reviewed and are discussed if the on-site inspection or other data are inconsistent with that shown in the temporary preliminary decree, dated MM/DD/YYYY.

DESCRIPTION OF SYSTEM

Example 1 (irrigation claim).

The system consists of diverting water from the Boulder River at the NESESW, Section 11, TWP 02S, RGE 13E, Sweet Grass County. The water is then conveyed approximately 2 miles via the Skillman ditch to the claimed place of use to flood irrigate the hayland between the ditch and the Boulder River. Water is diverted from the Skillman ditch by 12 inch corrugated metal pipes with slide headgates into a contour ditch irrigation system. The claimed place of use slopes moderately to the river and the soil appears to consist of a cobbly loam (see Figure____).

Example 2 (commercial claim).

This water right is used at a combination cafe, motel, and trailer court business on 3 acres located five miles south of Twin Bridges in Section 6, TWP 06S, RGE 02W, Madison County (Figure____). The cafe has a seating capacity of 25. The motel has eight units, and the trailer park has ten spaces. The source of water is a well with a submersible pump as the means of diversion.

Example 3 (fish and wildlife claim).

According to Peter McGee (co-owner) on or about January 25, 1979 an earthen dam was constructed across a small unnamed tributary to Meadow Creek. This instream impoundment structure consists of a 10-foot high dam which backs up less than a surface acre of water with a maximum depth of eight feet.

At the time of construction this reservoir was stocked with trout from the "old Emigrant hatchery". (No fish stocking permit was secured.) Peter McGee indicated that a few fish probably still exist in the pond, which is also utilized for stockwater.

The reservoir is located approximately 1 mile upstream from the confluence with Meadow Creek (see Figure____). A 10-inch diameter stand pipe in the reservoir acts as a capacity regulating structure and allows water to be routed through the dam and re-enter the historic creek channel.

Example 4 (domestic claim).

The system currently in place is a spring development that consists of four separate springs, each with a catchment basin.

Water from each catchment basin flows into one 2100-foot, 1/2-inch plastic pipe which delivers the water to a collection box. An additional spring is located 50 feet southwest of a collection box where the water from all five springs is combined. A delivery line of 1/2-inch plastic pipe, 2600 feet in length, extends from the collection box to a 1000 gallon storage reservoir (see Figure____).

Two lines continue from the storage reservoir to two places of use. One line presently serves the Doe residence (41A 000000-00) and the other line served the old Smith house (41A 000000-00), now owned by Sherry L. Gray. According to Mr. Doe the line to the Smith house, although in good condition, was shut off in 1980 because the house is unoccupied.

Presently the system is utilizing only 2 of the 5 spring developments. The wooden catchment basins at springs 1, 2, and 3 (see Figure____) are presently dry, and the catchment basins have been destroyed. Mr. Doe stated that springs 1, 2, and 3 have not been used since the mid-1950's. The wooden catchment basins at springs 4 and 5 are in poor condition but have water present on the surface. These two spring developments are still providing water to the collection box. The collection box and delivery line that leads to the 1000 gallon reservoir are in good condition.

RESULTS OF INVESTIGATION

Example 1 (irrigation claim).

Diversion: The claimed and decreed point of diversion (POD) was for a reservoir with a dam as the means of diversion. Through the field investigation, the diversion means was found to be a dike. The POD legal land description observed was the same as that claimed and decreed. No reservoir or reservoir impoundment structure was found. Mr. Smith stated that a reservoir has never been associated with this diversion. The Valley County Water Resource Survey published in June of 1968, incorrectly refers to the diversion structure as a stock water reservoir. The 1959 aerial photos used in compiling the Valley County Water Resources Survey show water backed up behind the dike (see Figure ____), which was the reason for a reservoir being claimed and decreed.

The dike observed during the investigation was washed out. The claimant stated that the dike was already washed out when he purchased the property in 1972. Jordan Coulee appears to run in the original channel through the dike, with no water being diverted by the dike. There are sagebrush and numerous prairie grasses growing in the stream channel. No visible water marks could be seen.

Example 2 (irrigation claim).

Flow Rate: The claimed flow rate was 4.0 cfs. In the Temporary Preliminary Decree this was reduced to 3.6 cfs through application of the 17 gpm/acre Water Court standard. Due to low stream flows, no diversion was taking place during the investigations, and no flow rate measurements were made. Mr. Warp estimated that the three ditches could each convey up to 1.5 cfs. It should be noted that the source is an intermittent stream. Mr. Warp stated that some years it has been necessary to divert water at a greater than normal rate because of the shortened period during which water was available.

Example 3 (commercial claim).

Flow Rate: The claimed and decreed flow rate was for 20 gallons per minute (gpm). This flow rate figure was based on pump test data provided on GW4 "Declaration of Vested Groundwater Rights" submitted with the original claim file. The claimant stated that no flow rate measurement for the 0.5 horsepower pump has ever taken place. The claimant did not know the make and model of the pump.

According to Mr. Derrick of the Deep Drilling Company in Bozeman, the average flow rate that can be expected from a 0.5 horsepower Myres pump Model No. S2J51-511 with a 12-foot lift is between 10 - 15 gpm.

The attached February 5, 1981 memorandum concerning estimated flow rates based on horsepower versus vertical lift ratio suggests that a 0.5 horsepower pump with a 12-foot lift can provide about 16 gpm (see Figure____).

Example 4 (irrigation claim).

Volume: The claimed volume is 166 acre-feet per year. Jones and Cooper discussed the irrigation practices in an attempt to estimate volume diverted each year. Jones reported that he pumps into the upper ditch at about 800 gpm average for 20 days per irrigation. He estimates that he pumps into the lower ditch at about 2200 gpm average for 11 days per irrigation. From this information, the following estimated volume was calculated:

$$800 \text{ gpm} \times 20 \text{ days/irrigation} \times .0044191 \text{ AF/gpm/day} = 70.70 \text{ AF/irrigation}$$

$$2200 \text{ gpm} \times 11 \text{ days/irrigation} \times .0044191 \text{ AF/gpm/day} = 106.94 \text{ AF/irrigation}$$

Jones estimated that he may irrigate up to 1.5 times per year, which would mean a total volume of 266.46 ac-ft per year. This exceeds the Water Court volume guideline of 9.4 acre-feet per acre or 216.20 acre-feet per year. The Water Court guideline represents total system efficiency of 20 percent. This calculated diverted volume represents a total system efficiency of 16.2 percent. Reasons for reduced efficiency could include the larger head required to push water across the generally gravelly soils. It should be noted that this calculated diverted volume figure is based solely on estimates.

Example 5 (commercial claim).

Volume: The claimed and decreed volume for this right is five acre-feet per year. According to the claimant, no measurement of the annual volume diverted has ever taken place. The maximum volume possible at the decreed flow rate is 48.8 acre-feet per year. The claimed volume is less than the Water Court guideline, which limits commercial volumes based on a twelve hour day, i.e., 24.4 acre-feet per year for this diversion. Attached is a copy of Manual of Individual Water Supply Systems by USEPA. This document indicates that the decreed volume of 5 acre-feet per year reflects typical daily water use for a water system involving a cafe, motel, and trailer court.

Example 6 (irrigation claim). Place of Use and Acres Irrigated: The claimed and decreed place of use and acres irrigated are:

23.00 acres	NW	Sec 19 TWP 02S RGE 13E	SWEETGRASS CO.
86.00 acres	NE	Sec 19 TWP 02S RGE 13E	SWEETGRASS CO.
17.00 acres	NENE	Sec 19 TWP 02S RGE 13E	SWEETGRASS CO.
<u>17.00 acres</u>	NENE	Sec 20 TWP 02S RGE 13E	SWEETGRASS CO.
143.00 acres total			

Investigation found the place of use and acres irrigated to be (see Figure____):

46.50 acres	NW	Sec 19 TWP 02S RGE 13E	SWEETGRASS CO.
<u>41.60 acres</u>	NE	Sec 19 TWP 02S RGE 13E	SWEETGRASS CO.
98.10 acres total			

This total includes virtually all irrigable land between the Elges-Muncaster Ditch and the West Boulder River. The major area of discrepancy between this finding and the claimed place of use is that the claim included land irrigated from the Foster-Rule Ditch (41A 000000-00). Doe reported that this land is not irrigated using the Elges-Muncaster Ditch, that the place of use claimed for 41A 000000-00 is in error, and that there is no place of use overlap between 41A 000000-00 and 000000-00. Therefore, no supplemental rights relationship exists between 000000-00 and 000000-00.

Example 7 (irrigation claim).

Place of Use and Acres Irrigated: The claimed place of use (POU) is for 423 acres of irrigation. In May, 1984, [NAME], Water Rights Technician, identified 263 acres when the claim was examined using USDA aerial photo no. 779-999, dated 07/29/1978.

During the investigation, two facts about the POU were observed that need to be addressed.

First, the observed POU in Section 1 has two methods of irrigation: ditch and natural overflow. According to Mr. Rath, the natural overflow is because the large drainage area above the POU causes high water during spring runoff and after big storms.

Second, an old ditch (see photos 1 and 2) covers part of the claimed POU. The ditch is in good condition but it lacks a structure to divert water. Mr. Rath could not recall the exact date this ditch had last been used. The land below this ditch (43.2 acres) was not being irrigated.

Mr. Rath agreed to the areas observed as irrigated below the storage reservoir in Section 1, 12, 18, and 19 (see photos 3 and 4). As mapped with Mr. Rath and later measured with a digital planimeter, 239.5 acres are presently irrigated and an additional 43.2 acres could have been historically irrigated. Mr. Rath had no knowledge of when or if the 43.2 acres had been irrigated. Of the 239.5 acres being presently irrigated, 119.8 acres are flooded, and 119.7 acres are dike and natural overflow. The POU, number of acres claimed, and number found during the field investigation are shown in Table____.

SUMMARY

Example 1 (irrigation claim).

The means of diversion is a dike. The dike is breached, no water is being diverted, and no irrigation is taking place. Five acres would be the maximum irrigable acres. Because no reservoir was found, the reference to a reservoir in the decree appears unnecessary.

Example 2 (irrigation claim).

According to field observations, the controlled point of diversion off Miles Gulch is a headgate located in the SENWNW of Sec. 4, TWP 9N, RGE 6W, Powell County, and not in the location decreed. The conveyance system from this diversion irrigates a total of 24.0 acres. No actual measurements were taken of flow rate and volume. Based on identified acres proportionally related to the original claimed flow rate (1.25 cfs) and volume (120.0 acre-feet/year), the adjusted flow rate and volume using Water Court guidelines would be 0.75 cfs and 72.0 acre-feet/year, respectively.

Example 3 (domestic claim).

Based on field investigation observations, water rights for the Turk property had both domestic and irrigation purposes. The 5 acres decreed as "lawn and garden" use was found to be 20 acres of sprinkler "irrigation" used for pasture and hay production. The place of use of the 20 acres is:

5.0 acres	SESWSW Sec 36 TWP 10N RGE 17W	GRANITE CO.
<u>15.0 acres</u>	E2NWSW Sec 36 TWP 10N RGE 17W	GRANITE CO.
20.0 acres total		

The flow rate and volume for the irrigation use as adjusted by Water Court standard for 20 acres would be respectively 0.75 cfs and 170 acre-feet per year.

The domestic use for the homestead cabin based on Water Court standards would have a flow rate of 25 gpm (0.06 cfs) and a volume of 1 acre-foot per year.

The point of diversion was found to be used for the domestic and irrigation purposes. It was identified to be in the SESWSE of Sec. 35, TWP 10N, RGE 17W, and not as decreed. All other elements of the water right noted in the decree as claimed appeared to be correct.

EXHIBIT IV-19

Montana Water Court
PO Box 1389
Bozeman MT 59771-1389
(406) 586-4364
1-800-624-3270 (IN-STATE)
FAX: (406) 522-4131

FILED

SEP 23 2009

Montana Water Court

MONTANA WATER COURT

**ORDER ON DNRC EXAMINATION OF BLM
RESERVED WATER RIGHT CLAIMS
- STATEWIDE 2009 -**

On September 8, 2005, this Court issued a consolidated order directing the Department of Natural Resources and Conservation (DNRC) to examine all United States Bureau of Land Management (BLM) water right claims in accordance with the Water Right Claim Examination Rules. The order also directed DNRC to place a specific issue remark on reserved water right claims filed by the BLM based upon Public Water Reserve No. 107. The order was issued for basins 40B, 40R, 41A, 41B, 41D, 41J, 41M, 41P, 41QJ, 42C, 76F, and 76HA. The order should apply statewide.

Any BLM claim asserting a reserved water right will be examined in accordance with this order. Accordingly, it is

ORDERED that the DNRC shall examine all BLM claims in accordance with the current Water Right Claim Examination Rules. Basically, the claims will be examined as if they were filed under state law.

ORDERED that if any BLM claims assert a reserved water right under Public Water Reserve No. 107 (generally identified by a claimed priority date of April 17, 1926), the DNRC shall also add the following or similar issue remark to the claim abstract:

THIS CLAIM IS BASED ON PUBLIC WATER RESERVE NO. 107 CREATED BY EXECUTIVE ORDER DATED APRIL 17, 1926. IT IS NOT CLEAR IF THIS CLAIMED RIGHT IS A FEDERAL RESERVED WATER RIGHT, BUT IF IT IS, IT IS NOT CLEAR WHETHER THE PURPOSE CLAIMED WAS CONTEMPLATED BY SUCH A RESERVATION, OR IF THE AMOUNT OF WATER CLAIMED IS THE AMOUNT NECESSARY TO FULFILL THE PURPOSE OF THE RESERVATION.

ORDERED that if any BLM claims asserting a reserved water right under Public Water Reserve No. 107 are transferred to a private entity, the DNRC shall examine the transferred claim in accordance with the Water Right Claim Examination Rules, as amended, and add the following or similar issue remark to the abstract:

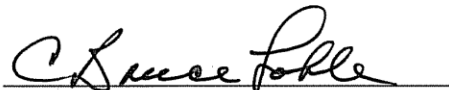
THIS CLAIM WAS ORIGINALLY FILED AS A RESERVED RIGHT BY THE UNITED STATES DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT, AND WAS BASED ON PUBLIC WATER RESERVE NO. 107 CREATED BY EXECUTIVE ORDER DATED APRIL 17, 1926. THIS CLAIM WAS SUBSEQUENTLY TRANSFERRED TO A PRIVATE ENTITY. IT IS NOT CLEAR IF THIS CLAIMED RIGHT IS A FEDERAL RESERVED WATER RIGHT, BUT IF IT IS, IT IS NOT CLEAR WHETHER THE PURPOSE CLAIMED WAS CONTEMPLATED BY SUCH A RESERVATION, OR IF THE AMOUNT OF WATER CLAIMED IS THE AMOUNT NECESSARY TO FULFILL THE PURPOSE OF THE RESERVATION, OR WHETHER THIS CLAIM MAY BE TRANSFERRED TO A PRIVATE ENTITY AND RETAIN THE ELEMENTS ASSOCIATED WITH A RESERVED RIGHT, OR WHETHER THE ELEMENTS OF THIS CLAIM MUST BE MODIFIED TO REFLECT ITS HISTORICAL BENEFICIAL USE.

ORDERED that this Order supersedes any previous order on Public Water Reserve No. 107.

ORDERED that if any BLM claim asserts a reserved water right with a priority date other than April 17, 1926, the DNRC shall add the following or similar issue remark to the abstract:

THIS CLAIM WAS FILED AS A RESERVED WATER RIGHT. IT IS NOT CLEAR IF THIS CLAIMED RIGHT IS A RESERVED WATER RIGHT, BUT IF IT IS, IT IS NOT CLEAR WHETHER THE PURPOSE CLAIMED WAS CONTEMPLATED BY SUCH A RESERVATION, OR IF THE AMOUNT OF WATER CLAIMED IS THE AMOUNT NECESSARY TO FULFILL THE PURPOSE OF THE RESERVATION.

DATED this 23 day of September, 2009.



C. Bruce Loble
Chief Water Judge

Jim Gilman, Adjudication Bureau Chief
Montana DNRC - WRD
PO Box 201602
Helena, MT 59620-1602

S:\Share\WC-BASIN FOLDERS\General\ORD-BLM Reserved Claim Exam 9-23-09.wpd

EXHIBIT VI-1

OWNER/ADDRESS CORRECTION FORM

This form is generated from the Oracle Database by accessing the Reports menu followed by Administrative Reports: Name Address Corrections.

Generate this report after updating the appropriate fields in the database. Print the form for the file. On the form, document the type of correction (Name/Address or Address Only) and the research or contact.

April 2, 2009
Customer ID: 87128

Page 1 of 1
Name and Address Correction

Location: BOZEMAN REGIONAL OFFICE

Film and File Here: ADJ 138419-00 76G

<input type="checkbox"/>	Name/Address Correction
<input type="checkbox"/>	Address Correction Only

Active Water Rights: 1

Basin	Number	Type
76G	138419-00	STATEMENT OF CLAIM

Name: BRIAN W MURPHY	Changed To:
First : BRIAN	First :
Middle :W	Middle :
Last : MURPHY	Last :
Suffix :	Suffix :
Type: INDIVIDUAL	Type:

Old Address
29909 SOUTHSIDE RD ALBERTON, MT 59820

New / Primary Address	Created On: 02/17/2006
1261 SHERMAN AVE SALT LAKE CITY, UT 84105-2545	

Note: Name change must be documented for all WR # Address change need document only lowest WR #	
_____ Telephone contact on _____ with _____	
_____ Signature check & microfiche research	
_____ Standardization or Clerical error	
_____ Other	
Comments: _____	

Researched By: TRACY MCCREERY

EXHIBIT VI-2

PUBLIC DOMAIN ACTS AND RELATED CHAOS

By Steve Anderson, Water Right Technician, Havre Field Office
for Bob Arrington, Adjudication Program Manager
March 3, 1987

Originally, the settlers were considered trespassers on public land. Eventually the government realized the need to make improvements on the wilderness to the west. In an attempt to control settlement, the federal government created several acts.

As time went by and conditions changed, the legislature attempted to amend the acts to fit the needs of the homesteaders, conditions of the land, and to ensure the intent of the original acts was followed. The amendments were usually too little too late. Also the administration of these laws changed. As a result, many promoters and ranchers abused the system and tied up large tracts of land.

What will follow is a summary of the public land acts. By familiarizing yourself with them, it will be easier to understand the problems we may encounter.

Preemption Rights:

This was the first method available to settlers to acquire title to Public Domain lands. For many years (from 1830) the preemption privilege secured a settler's right to purchase the tract of land he was on. Originally the right of preemption was only for surveyed public lands not exceeding 160 acres. The settler had to pay a fixed price of \$1.25 per acre. A preemption right was a possessory right, established by the construction of a dwelling and the making of improvements.

The surveyed land provision of the act was changed in 1842, but purchase and patent could not take place until after the lands were surveyed. The act provided that the preemptor should file his declaration of intent to purchase within three months after settlement, or in case it wasn't surveyed at the time of settlement, within three months after the filing of the survey plat. After these lands were surveyed, the actual property boundaries stayed the same even if they didn't fit in the rectangular system.

Homestead Act (May 20, 1862):

Through this act, any American citizen "who has never borne arms against the United States Government or given aid and comfort to its enemies" could acquire 160 acres by:

- filing an application with the General Land Office
- settling for a 5 year "prove-up" period
- cultivating 1/8 of the land

At that time, the settler could file a Certificate Homestead (Figure A) with the local United States Land Office. On presentation of this certificate to the Commissioner of the General Land Office (G.L.O.), the Homesteader is entitled to receive a patent (Figure B) for the land. When the patent from the G.L.O. is filed with the County Clerk and Recorder, it becomes the first deed on the land.

EXHIBIT VI-2 (cont.)

Figure A: Certificate of Homestead

Figure A EXHIBIT VI-2 (cont.) COPY

Document No. 117095

DEPARTMENT OF THE INTERIOR *a.s.*

UNITED STATES LAND OFFICE Harro, Montana

Serial No. 224678

Receipt No. 2192 *App 4-24*
Orig. Receipt, 15-9147, App 2-10-16.

**Certificate
Homestead**
Act June 6, 1912.

IT IS HEREBY CERTIFIED THAT, pursuant to the provisions of Section 2291, Revised Statutes of the United States
Joe Carlier of Adams County of Plains, State of Montana

has made payment in full for Lots 1 and 2 and S 1/2 NE 4

Section 4 Township 32 North Range 17 East Montana
 Meridian Montana Containing 16 4.28 acres.

NOW, THEREFORE, BE IT KNOWN that, on presentation of this certificate to the COMMISSIONER OF THE GENERAL LAND OFFICE, the said Joe Carlier

shall be entitled to receive a Patent for the land above described if all then be found regular.

Filed for record this 26th day of July A. D. 1917 at 11:30
 o'clock 0 M.

M. W. Hutchinson Register.
John H. Devine County Clerk and Recorder.
 By Paul J. Barnard Deputy.

Document No. 117177

DEPARTMENT OF THE INTERIOR *a.s.*

UNITED STATES LAND OFFICE Harro, Montana

Serial No. 224678

Receipt No. 2192 *App 4-24*
Orig. Receipt 2 195-691 App 3-28-7.

**Certificate
Homestead**
Act June 6, 1912.

IT IS HEREBY CERTIFIED THAT, pursuant to the provisions of Section 2291, Revised Statutes of the United States
Frank A. Hether of Harro, Hill County, Montana

has made payment in full for C. 5 S.E. 1/4 Sec. 7, S. 2 N. 1/4 Sec. 8, N.W. 1/4 Sec. 4

Section 17 Township 32 N Range 14 E Montana
 Meridian Montana Containing 2.80 acres.

NOW, THEREFORE, BE IT KNOWN that, on presentation of this certificate to the COMMISSIONER OF THE GENERAL LAND OFFICE, the said Frank A. Hether

shall be entitled to receive a Patent for the land above described if all then be found regular.

Filed for record this 29th day of July A. D. 1917 at 11:10
 o'clock 0 M.

M. W. Hutchinson Register.
John H. Devine County Clerk and Recorder.

EXHIBIT VI-2 (cont.)

Figure B: Homestead Claim

612 11912 v

HILL COUNTY, MONTANA COPY

Document No. 145376

4-1003 EXHIBIT VI-2 (cont.)

Name 232874

The United States of America

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate of the Register of the Land Office at Glenn, Montana

has been deposited in the General Land Office whereby it appears that pursuant to the Act of Congress of May 20, 1862, "To Secure Homesteads to Actual Settlers on the Public Domain," and the Acts supplemental thereto, the claim of

Millard M. Sumner

has been established and duly consummated in conformity to law, for the

southeast quarter, the southeast quarter of the northeast quarter, the east half of the southwest quarter, and the Lot three of Section twenty-four in Township twenty-eight north of Range sixteen east of the Montana Meridian, Montana, containing three hundred four and fifty-two hundredths acres

according to the Official Plat of the survey of the said land returned to the General Land Office by the Surveyor General.

Now Know Ye. That there is, therefore, granted by the United States unto the said claimant the tract of land above described:

TO HAVE AND TO HOLD the said tract of land, with the appurtenances thereof, unto the said claimant and to the heirs and assigns, of the said Claimant forever, subject to any vested and accrued water rights for mining, agricultural, manufacturing or other purposes, and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of courts, and there is reserved from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

In Testimony Whereof, I, Warren G. Harding President of the United States of America, have caused these Letters to be made Patent, and the seal of the General Land Office to be hereunto affixed.

Given under my hand and the seal of the City of Washington the fifth day of May in the year of our Lord one thousand nine hundred and twenty-two and of the independence of the United States the one hundred and forty-sixth

(United States General Land Office Seal)

BY THE PRESIDENT, Warren G. Harding

By Viola B. Pugh Secretary.

Recorded: Patent Number 861866 Om P. Le Ross Recorder of the General Land Office.

Filed for Record December 1st A. D. 1922, at 11:20 o'clock A. M.

Earl A. Branson County Recorder.

EXHIBIT VI-2 (cont.)

Settlers were permitted to commute their homestead entries to cash. After living on the land for 6 months, it could be acquired by paying \$1.25 per acre. During the early years of the operation of the Homestead Act, the commutation privilege was not often chosen by the settler. Then the settlers were genuine homesteaders and were on the land because they wanted farms, rather than to take advantage of the system.

On land that was granted to the Railroad, a settler could only claim 80 acres until 1880 when he could claim 160 acres. These lands could be commuted by paying \$2.50 per acre.

After 1880, a settler could count the time they spent on unsurveyed lands towards their "prove-up" period.

After 1891, fourteen (14) months residency was required before commuting was allowed, but 6 months was allowed to elapse before the establishment of a residence was required. Eventually, residency for the full 14 months was required.

In the early 1900's, the production of wheat, flax, and other crops was spreading. Land could be brought into the market at \$1.25 or \$2.50 per acre a quarter section at a time, by means of the homestead privilege. Many instances have been recorded when a single crop brought values sufficient to buy and improve the farm it was grown on.

These facts encouraged speculators. No sooner was the time right for commutation than the land was made the basis for a loan. Then it might be held as a speculation for a few years, or it was sold at once. The prices during the early part of the decade ranged from \$400 to \$2600 for a quarter section. The sales were made to farmers who wanted large farms.

The fact that the homestead was too small to fit the grain producing conditions of the Northwest is an important point in explaining why homesteaders sold out so quickly.

Forest Homestead Act:

The Forest Homestead Act of 1906 opened to agricultural entry forest reserve lands which:

- are chiefly valuable for agriculture
- are not needed for public purposes
- are in the opinion of the Secretary of Agriculture, may be occupied without injury to the forest.

Applications for land not exceeding 160 acres or one mile in length were made to the Secretary of Agriculture. The land was examined by a field agent of the Forest Service and if his report was favorable, the land was listed with the Department of the Interior. After that, the homestead proceeds as any other entry under the Homestead Law, but no commutation was permitted.

The law differs from all other agricultural land laws in that the land must be chiefly valuable for agriculture and that the entry may be described by metes and bounds instead of legal subdivision of the public land survey. Sometimes when metes and bounds descriptions were used, claim clubs were organized. These clubs were groups of Homesteaders. They felt, by banding together and sticking up for each other, it would give a little more clout to their metes and bounds surveys.

EXHIBIT VI-2 (cont.)

Enlarged Homestead Act:

The ready availability of free or cheap land and the new method of dry farming made the Montana Homestead boom possible. However, high grain prices (which climbed from 1897 to 1920), promoters, and the Enlarged Homestead Act of 1909 (which doubled the amount of land available per person) launched it. Requirements within this Act provided that 1/4 of the land should be cultivated; that residence be required; and that the land should be non-irrigable. This Act may be looked on as a beneficial change in the public land policy made to accommodate the requirements to the peculiar conditions for the arid regions as compared with the humid regions it was designed for.

Three Year Homestead Act:

The Three Year Homestead Act of 1912 reduced the waiting period from 5 years to 3 years and permitted a homesteader to be gone for 5 months out of the year. It also gave added incentive to fulfill the residence requirements rather than commuting.

Stock Raising Homestead Act of 1916:

The Enlarged Homestead Act adapted the size of the farm to the type of cultivation, but there remained a large area of land in the Mountain States which was not adapted to the cultivation of any merchantable crop. This land could be used for grazing and for raising forage crops, which, to be worthwhile must be fed to cattle.

The more important revisions of the Stock Raising Homestead Act are:

- that 640 acres shall be the maximum homestead
- that the land must be designated by the Secretary of the Interior as "stock raising" land
- that the land must
 - have a surface good for only grazing and forage
 - contain no merchantable timber
 - have no convenient irrigation facilities
 - be of such quality to require 640 acres to support a family
- that certain improvements rather than a certain amount of cultivation are required on the homesteads
- no commutations are allowed
- coal and mineral rights are reserved
- waterholes are reserved for public use, also land on certain "trails" leading to these watering places. (This one sounds like trouble.)

No progress was made in the administration of this law until 1918, due to the failure of Congress to appropriate funds to carry on the classification of lands. (Some things never change.)

Much of this land would require more than 640 acres to support a family. The homesteader himself was required to make the decision as to the feasibility of supporting himself and family on any given piece of land.

Unfortunately, most homesteaders were not qualified to do this. As a result, there were a large number of sorry homesteaders; a group of stockmen bankrupt due to the breaking up of the range; and, a great many acres of good shortgrass plowed up and rendered worthless for many years to come.

EXHIBIT VI-2 (cont.)

Taylor Grazing Act:

The Taylor Grazing Act of 1934 withdrew all public lands from entry for the purpose of classification. The areas that were best suited for grazing were divided into Grazing Districts and leased to ranchers. This Act virtually halted agricultural homesteading in the Western Public Land States.

Desert Land Act of 1877:

The Desert Land Act was designed to fit the more arid conditions of the west. It authorized the sale of a 640 acre section of land to a settler who would irrigate 1/8 of it within 3 years after filing an application. It was meant to encourage reclamation and improvement of arid lands. Entries were originally permitted on unsurveyed land. A \$.25 per acre fee was made at the time of filing and a one dollar per acre fee at the time of making proof of compliance with the law.

The problem was that farmers could seldom irrigate such large plots without government support. Cattlemen would claim a section of range, make a token effort to irrigate and use it for pasture until the end of the 3 year "prove-up" period. Then forfeit the land to the government with the use for 3 years at little expense.

In August of 1890, an act was passed that restricted the amount of agricultural desert entry land that could be acquired from the government to 320 acres.

The Act of March 1891 amended the Desert Land Act and stipulated that:

- improvements amounting to \$3.00 an acre, one dollar an acre for 3 years, should be put toward reclamation.
- 1/8 of the land should be cultivated
- persons might associate together in a project for watering their several entries
- only citizens of the state in which the land was situated were allowed the privilege of entry
- required irrigation before patent could be issued on desert homesteads
- repealed the preemption laws
- granted rights of way for ditches, canals, and reservoirs on public lands. (Plats of these rights of way had to be filed with the land office showing the locations. These plats are frequently incorrect and do cause some problems when the sections are resurveyed.)

The Act of March 1915 amended the Desert Land Act and provided that:

- 3 years additional time be granted to entrymen who have spent the \$3.00 per acre in an effort to irrigate and cultivate their land, and can show a reasonable prospect of doing so within 3 more years.
- Those that have spent the money without prospect of getting water have the opportunity of getting title under the Homestead Act.
- Those failing to get water were offered the privilege to pay \$.50 per acre to the government; then expend \$1.25 per acre on improvements, cultivate the land for 3 years, and finally pay \$.75 per acre additional to the government and receive title.

EXHIBIT VI-2 (cont.)

Carey Act of August 18, 1894:

Under this act, the federal government agreed to donate certain states a quantity of land not to exceed 1,000,000 acres each, which they should cause to be settled, irrigated, and part cultivated. To obtain patents to these lands from the government, it required that at least 5 of each 40 acres must be irrigated. Where it was impractical to comply with this requirement, the non-irrigable lands were relinquished to the state government.

Also under this act, contracts were granted for the construction of irrigation systems, and the right to sell and dispose of water rights to the settlers or purchasers of public lands.

When the Carey Act enterprises (improvements) were completed and paid for, they were turned over to local companies. Stock in these companies were issued to the holders of the water rights, the enterprises thus became cooperative. Under the act, about a million acres have been patented to private parties.

Problems:

Most of the problems we will have with old public domain lands that have gone to private ownership stem from old surveys. Many of these surveys have errors in them. These errors are due to poor equipment, hostile environment, abundance of land, and lack of skilled surveyors.

In areas where no rectangular surveys have been conducted, section corners were often protracted, and therefore not very accurate. Surveys were tied into a known section corner if there was one within 2 miles. If there wasn't, a permanent location monument had to be erected. Very often these surveys will be in General Land Office (G.L.O.) plat books.

Most areas have been resurveyed. Originally the purpose of resurveys was to determine where the corner was established initially. Legislation providing for resurveys came about when it became apparent that the lines and corners of many older surveys were becoming so obliterated or distorted that their identification was in doubt. One stipulation of the resurvey laws was that no resurvey may be executed in such a way that it could impair the rights of the claimant of the lands affected.

The problem we may have is if an old map is sent with the claim, and the area has been resurveyed. The old map could show an inaccurate legal land description. When we come across these types of maps, they should be compared to recent U.S.G.S. maps or G.L.O. plat books.

Examples of Homestead Entry Survey maps will follow.

EXHIBIT VI-2 (cont.)

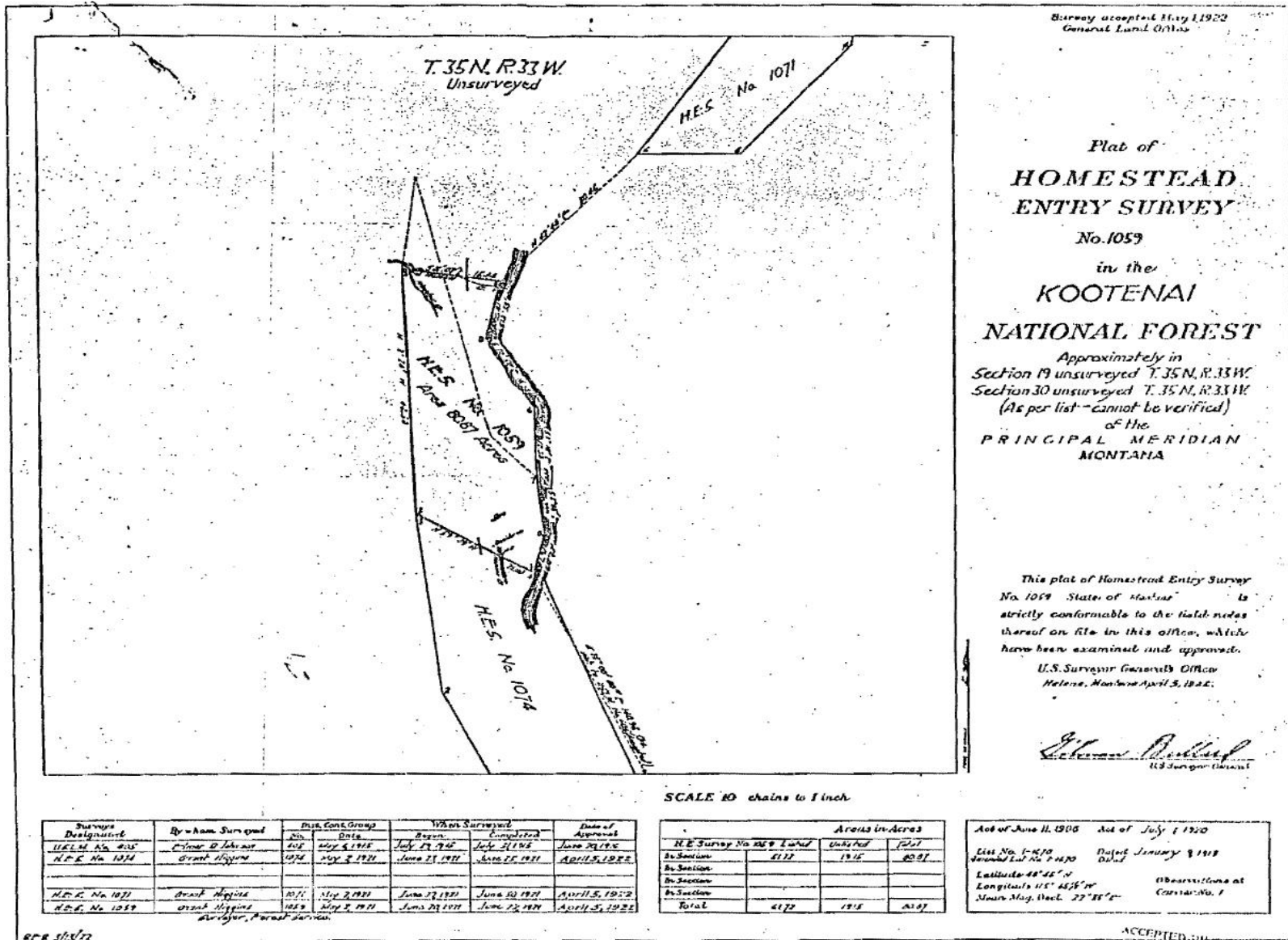
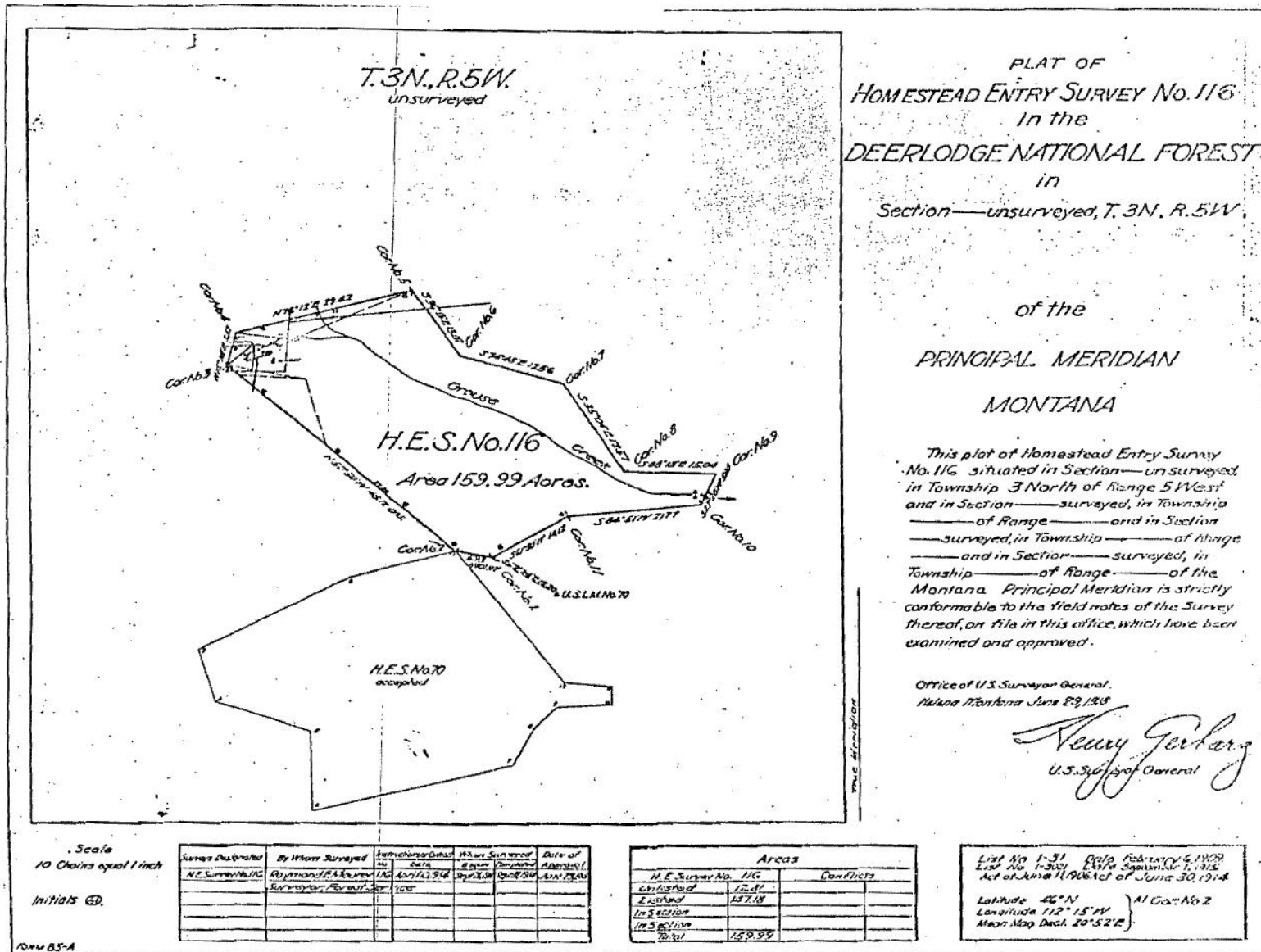


EXHIBIT VI-2 (cont.)



MINERAL SURVEYS

The Mining Law of 1872 opened the valuable mineral deposits in the lands belonging to the United States to further prospecting and development. One of the requirements for obtaining a patent to a mining claim was a boundary survey. The survey was to be paid for by the claimant, but made by a government-appointed surveyor. Bearings are referred to the true meridian and distances are in feet.

The position of the claim is tied into the nearest section or quarter section corner. If no public corner exists within 2 miles, a location monument is established on some prominent point having good visibility from every direction. Monuments set by the original locator are used as the true location of the claim. The Act of April 28, 1904, declared mineral survey corners to have the same legal status as rectangular survey corners. They were unchangeable, and the Surveyor General had to honor them.

A mineral claim until patented is a partial right since title to the land is retained by the government.

In addition to determining the size of a claim and setting permanent boundary corners, the surveyor records topography, location of shafts and tunnels, location of the vein where it crosses the end lines, conflicts with adjoining claims and location of springs, salt licks, and mill sites.

Problems:

Location surveys for unpatented mining claims may be made by the claimant or someone employed by him. Only final surveys for patent must be made by a United States mineral surveyor. Very often location survey maps are little more than glorified sketch map. If one was submitted with a water right claim, it would be reckless to get a legal land description from it.

Old maps for patented mining claims, or copies of U.S. Forest Service or Bureau of Land Management maps with patented ground delineated on them, may be submitted with a water right claim. These should be compared with the General Land Office plat maps for accuracy. The legal land description is the least of our problems when it comes to mining claims. Flow rate and volume are the juicy ones.

Copies of mineral survey plats are attached.

EXHIBIT VI-2 (cont.)

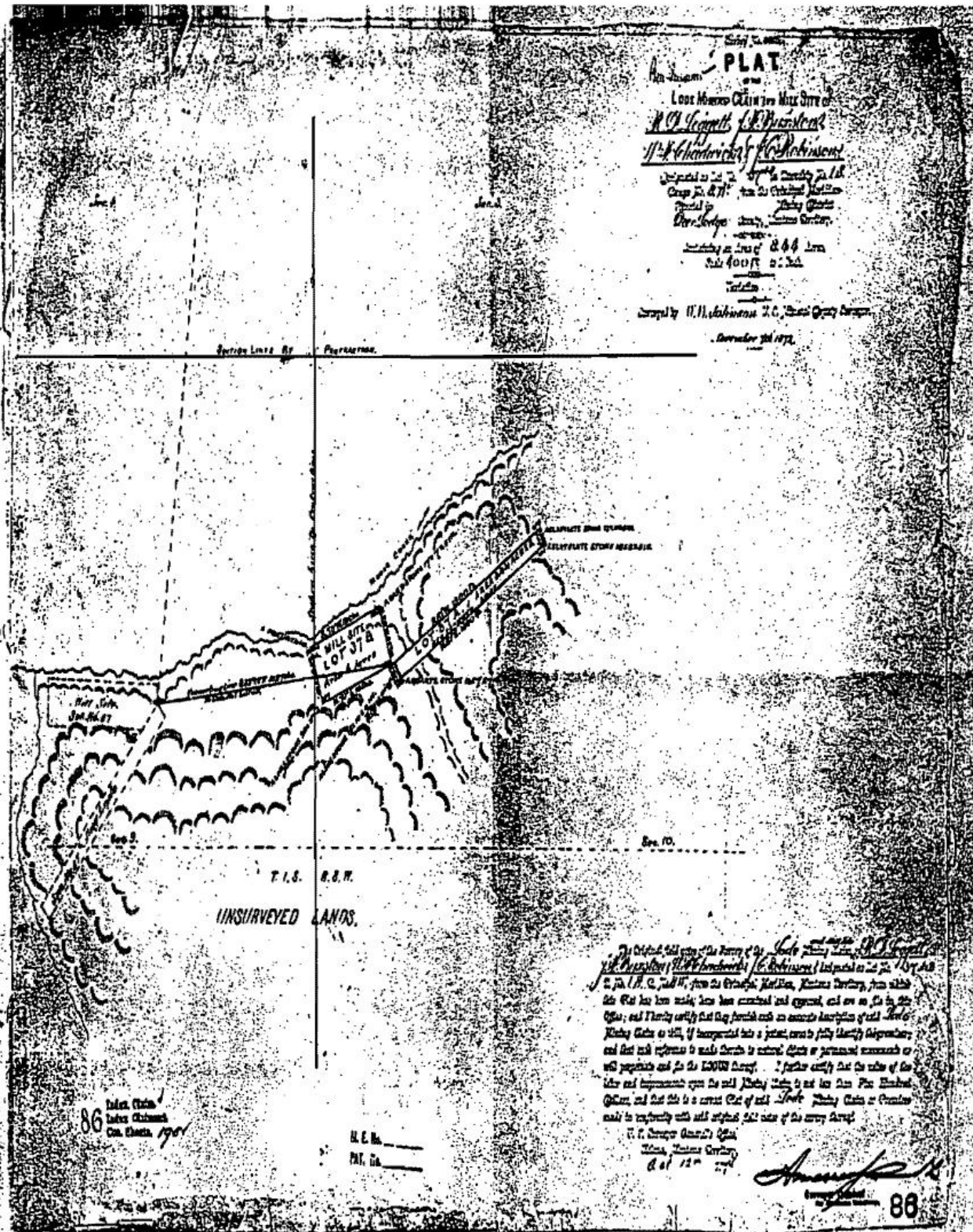
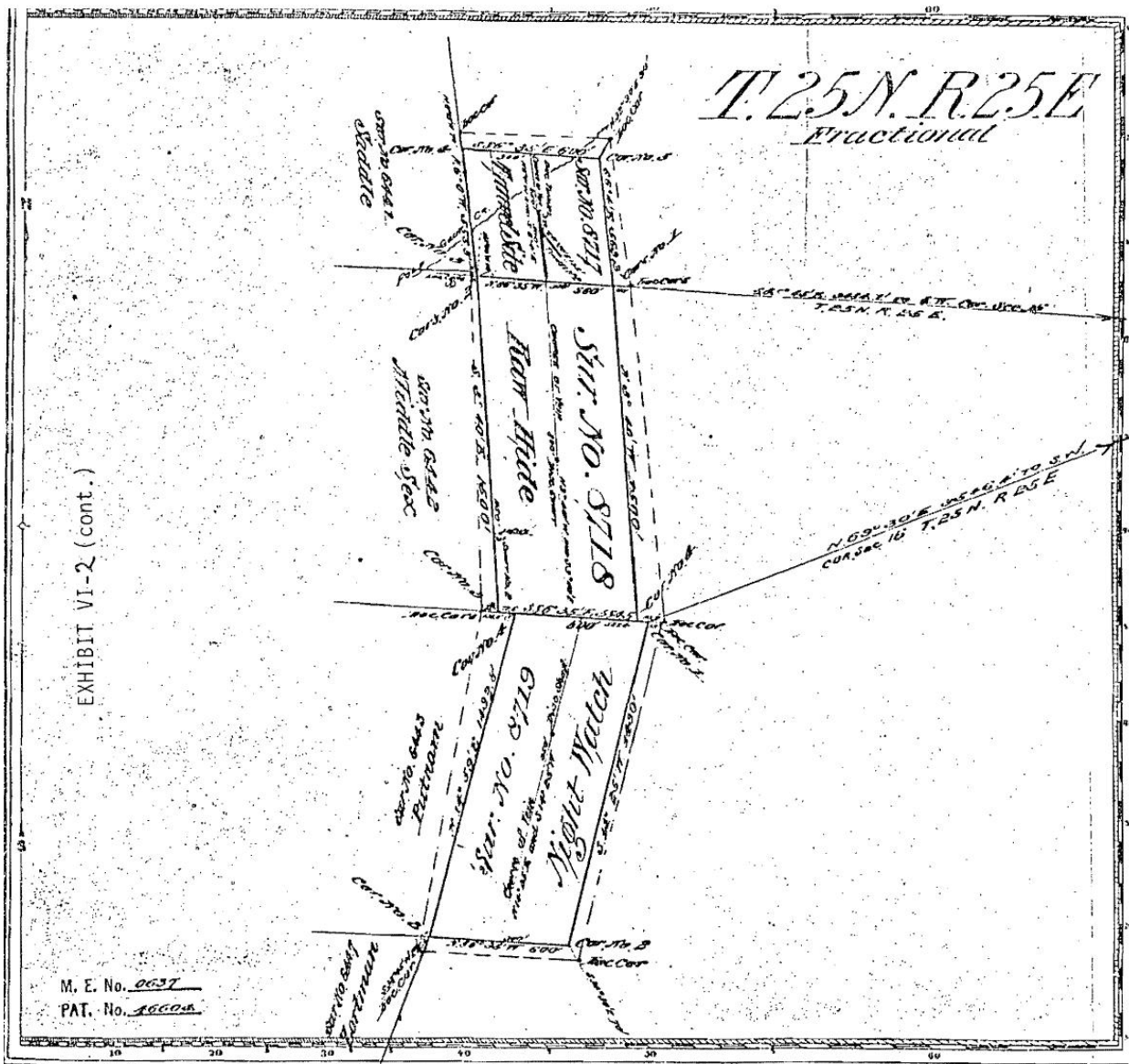


EXHIBIT VI-2 (cont.)

Claims located

TRAVEL BY F.B. 1ST 1908
RAW HIDE SEPT. 20 PM 1901
NIGHT WATCH JAN. 1ST 1903

Mineral Survey Nos 8717, 8718 and 8719

Lot No
Glasgow Land District.

PLAT
OF THE CLAIM OF

D. D. Phillips, et al.,
KNOWN AS THE
Tunnel Site, Raw Hide
and Night Watch Trades
IN SILE ROCKIES TRACT MINING DISTRICT,
CHULASEA COUNTY, MONTANA
Containing an Area of 28.11 Acres.
Scale of 400 Feet to the inch.
Variation 13° 15' E.

WITNESSED October 5th to 12th 1907 BY
Arthur D. Dyer, U.S. Deputy Mineral Surveyor,

The Original Field Notes of the Survey of the Mining Claim of
D. D. Phillips, et al.,
known as the
Tunnel Site, Raw Hide
and Night Watch Trades
from which this plat has been made under my direction
have been examined and approved, and are on file in this office
and I hereby certify that they furnish such an accurate descrip-
tion of said Mining Claim as will, if incorporated into a patent,
serve fully to identify the premises, and that such references
is made therein to natural objects or permanent monuments
as will perpetuate and fix the locus thereof.
I further certify that Ninety Hundred Dollars worth of labor has
been expended or improvements made upon said Mining
Claim by claimants or their grantors, and that
said improvements consist of two tunnels, two ditches,
shafts, tunnel and shaft, valued at \$3445.
that the location of said improvements is correctly shown
upon this plat, and that no portion of said labor or im-
provements has been included in the estimate of expendi-
tures upon any other claim.
And I further certify that this is a correct plat of said Mining
Claim made in conformity with said original field notes of the
survey thereof, and the same is hereby approved.

U.S. Mining General's Office.
Tulsa, Okla. Nov. 10, 1907. Wm. H. Murray, General, for

116 254 1905, Market area

REFERENCES CITED

- McGraw-Hill Inc. 1966. Surveying, Theory and Practice, by Davis, Foote, Kelly.
- American Association for State and Local History, Nashville, Tennessee, 1978. Montana, A Bicentennial History, by Clark C. Spence.
- John Wiley & Sons, Inc. 1957, 1969. Boundary Control and Legal Principles, by Brown, Landgraf, Uzes.
- University of Washington Press 1976. Montana. A History of Two Centuries, by Malone, Roeder.
- U.S. Government Printing Office 1980. Surveying our Public Lands, by U.S. Department of the Interior, Bureau of Land Management.
- U.S. Government Printing Office 1926. A History of the Rectangular Survey System, by C. Albert White.
- The University of Wisconsin Press 1965. A History of the Public Land Policies, by Benjamin Horace Hibbard.
- State Engineer's Office, Helena, Montana, June 1964. Water Resource Survey, Pondera County, Montana, Part 1.
- U.S. Government Printing Office, Washington, D.C. Surveys and Surveyors of the Public Domain 1785-1975, by Lola Cazier.

OTHER RESOURCES

Bruce Crawford
U.S. Forest Service
Lolo National Forest
Bldg 24, Fort Missoula
Missoula MT 59801

James Muhn
U.S. Department of the Interior
Bureau of Land Management
P.O. Box 25047
Denver CO 80225-0047

Dave Walter
Montana Historical Society
Library
225 North Roberts St.
Helena MT 59620

Dick Larimer
U.S. Department of the Interior
Bureau of Land Management
P.O. Box 36800
Billings MT 59107

EXHIBIT VI-3

LAND SURVEYS AND DESCRIPTIONS

The precise statement of where a parcel of real estate is located is called the legal description. Whenever real estate is conveyed from one owner to another, it is necessary to know and state the location of the boundaries. The same process can be followed in describing the location of an irrigated field in the water adjudication process.

Rectangular System of Public Land Survey

The system provides for the subdivision of public lands into a rectangular pattern of townships, sections, and quarter-sections. The system was authorized by the Continental Congress in 1785 so that vast regions of the country could be easily surveyed and much of the land transferred into private ownership. The simplicity of the rectangular system makes it ideal for describing larger tracts of agricultural land. Some smaller tracts require that other methods be used.

Montana Surveys

Montana lands are referenced to an initial point located near Willow Creek. A north-south line called principal meridian and east-west line called a base line are extended through the initial point. Standard parallels of latitude are located at 24 mile intervals north and south from the base line. Likewise, guide meridians are located every 24 miles east and west of the principal meridian. Because guide meridians are true north lines, they converge toward the north pole. Hence the north boundary of 24 mile blocks will be less than 24 miles. See Fig. 1.

The 24 mile blocks are further subdivided into townships by range lines running north and south and township lines running east and west at 6 mile intervals. The townships are nearly rectangular, but due to polar convergence, the north side is also short. Townships are designated by numbers corresponding to the number of 6 mile blocks (both north or south, and east or west) that the township in question lies from the initial point. In Fig. 1, T3N, R6W refers to the township in the third row north of the base line and in the sixth column west of the principal meridian.

Figure 1.

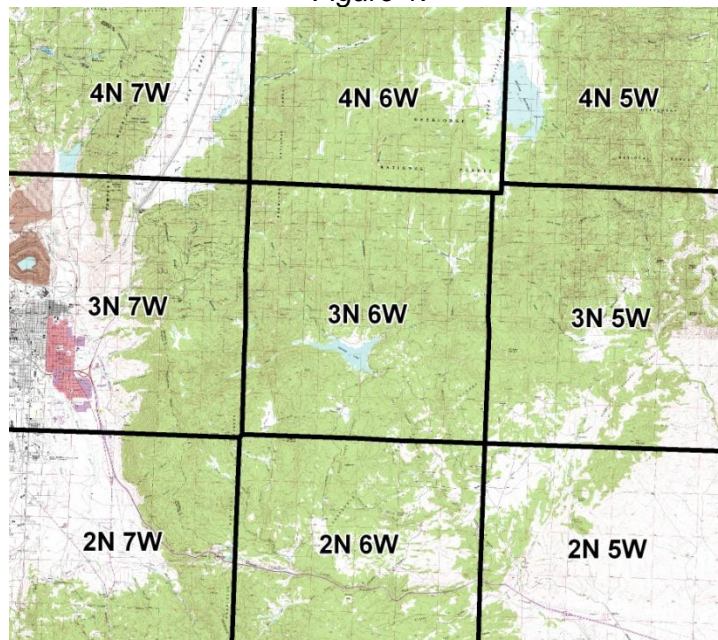


EXHIBIT VI-3 (cont.)

Sections

Townships are further subdivided into sections as is shown in Fig. 2. The subdivision is started in the southeast corner of the township and proceeds north and west through the township. Most of the sections will be one mile square and contain 640 acres. All survey errors are placed in the last ½ mile on the north and west of the township. In addition, the westerly column of sections will be less than one mile on a side due to convergence. Section numbering is indicated in Fig. 2. Each standard section can be further subdivided into smaller tracts as shown in Fig. 3.

Figure 2.

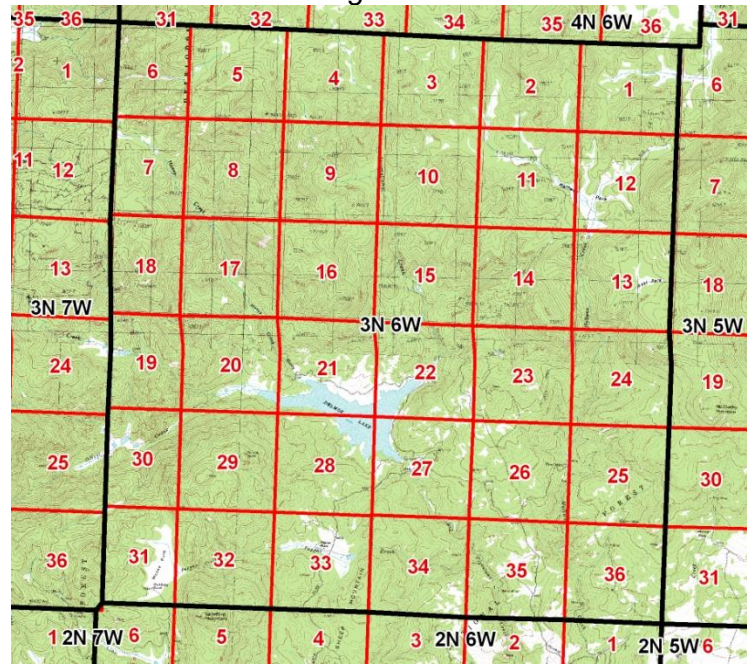


Figure 3.

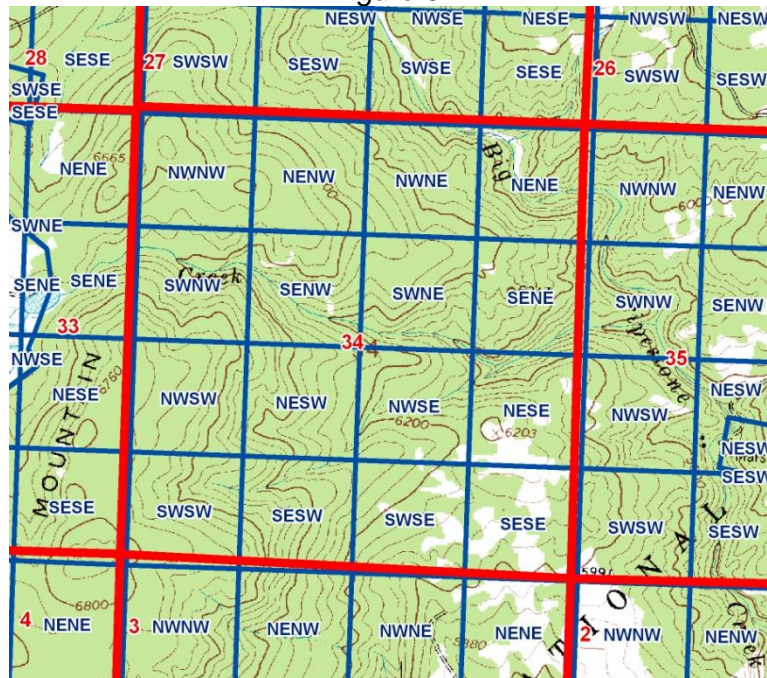


EXHIBIT VI-3 (cont.)

Lots

In sections which are not standard in size (that is 640 acres) all regular 40 acre tracts are first identified and then the remaining portions are broken into lots normally having between 10 and 50 acres. Surveys cannot be made with complete accuracy and surveys of large scattered tracts were sometimes made from starting points that did not coincide with a standard parallel or guide meridian. Thus where surveys joined, some sections were not full size and some lands were "left overs." Also, all sections on the West boundary of a township were not full size due to meridian convergence. Natural boundaries such as large lakes or rivers and reservation boundaries can keep sections from being full size. The last half mile distance on the north and west of the township were used to absorb survey errors or discrepancies with these portions of sections given lot numbers. Lots can thus occur in the North one half of section 1-6 due to survey errors, left over land or boundary interference; in the west half of section 6, 7, 18, 19, 30 and 31 due to error, left overs, convergence, or boundary interference, and in any of the remaining sections due to boundary interference. The actual dimensions of any lot were recorded with the filed map. Lot numbers can also be used when land is subdivided.

Legal Description

The legal description of a parcel of land under the rectangular system always begins with the smallest unit. Assume that section 23 as shown in Fig. 3 is located 8 townships south and 12 townships east of the Montana Principal Meridian. The small cross-hatched 10 acre parcel would be described as follows:

"The NW $\frac{1}{4}$, NE $\frac{1}{4}$, SW $\frac{1}{4}$, section 23, T8S, R12E, Montana Principal Meridian, and contains 10 acres, more or less."

The legal description of a parcel given a lot number might be for example Lot 4, section 6, T12N, R2E, Montana Principal Meridian.

Metes and Bounds

This method identifies a tract of land by giving the direction and length of its sides. The point of beginning must be fixed by stating its direction and distance from a section or quarter-section corner. An example of a metes and bounds description such as found on the deed of a real property follows:

"Beginning at a concrete monument located 1253.3 feet south and 49.6 feet west from the NE corner, Section 10, T8S, R12E, Montana Principal Meridian, at the center lines of Washington and Garfield Roads in the City of Woodland, County of Lewis and Clark, State of Montana, thence
North 81° 44' west along the southerly line of Elm Street for a distance of 939.0 feet to an iron pin on the easterly line of Tracy Road;
South 10° 04' west along the easterly line of said Road for a distance of 833.7 feet to an iron pin;
South 63° 18' east along the northerly iron fence for a distance of 182.7 feet to a cross cut on a stone;
South 77° 42' east continuing along said iron fence for a distance of 310.9 feet to an iron post;
North 67° 47' east continuing along said iron fence for a distance of 638.2 feet to a spike in the southwest corner of a 15-inch fir tree.
North 1° 40' east along a woven wire fence and the property now, or formerly, belonging to John Jones for a distance of 593.1 feet to the point of beginning;
All bearings being referred to the true meridian; the tract containing 18.59 acres, more or less; and being shown on the plat drawn by John Doe, Registered Land Surveyor, dated..., which is attached hereto and made a part hereof."

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

LAND DESCRIPTION DIAGRAM

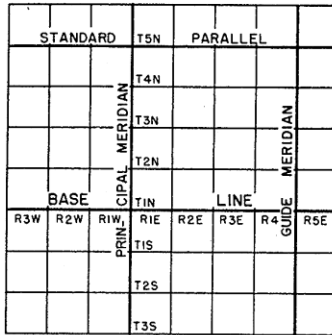


Diagram showing division of tract into Townships

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

Sectional map of Township showing adjoining Sections

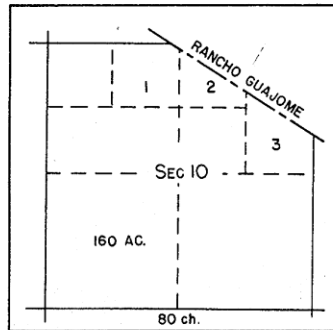
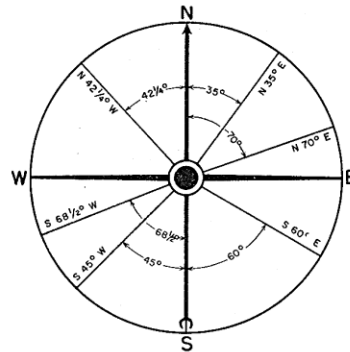
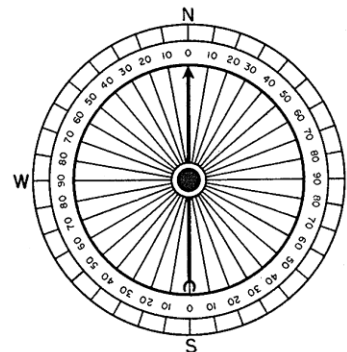


Diagram illustrating division of Fractional Section into Government Lots



60 seconds equal one minute
60 minutes equal one degree



90 degrees in a right angle
360 degrees in a circle

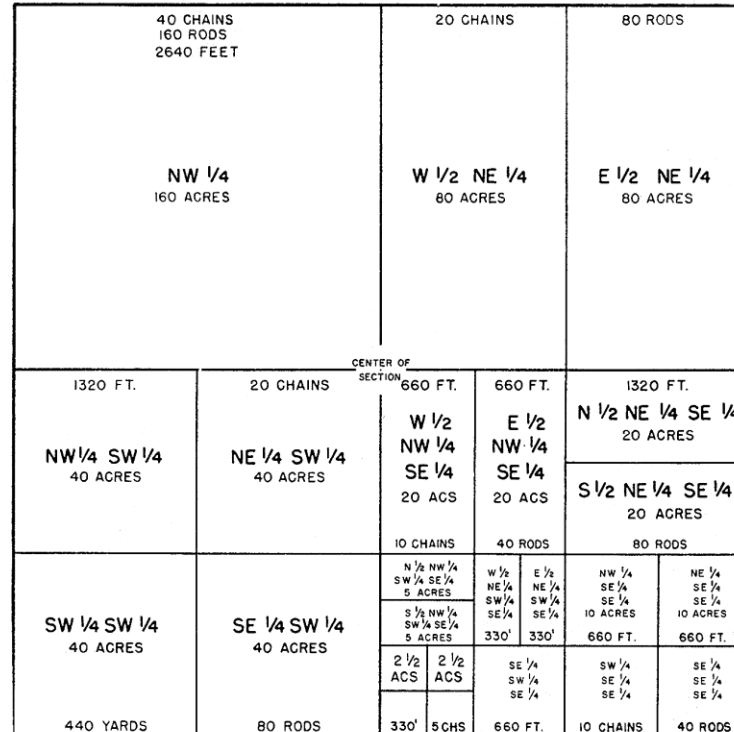


Table of Land Measurements

LINEAR MEASURE

1 inch =	.0833 ft.
7.92 inches =	1 link
12 inches =	1 foot
1 vara =	33 inches
2 3/4 feet =	1 vara
3 feet =	1 yard
25 links =	16 1/2 feet
25 links =	1 rod
100 links =	1 chain
16 1/2 feet =	1 rod
5 1/2 yards =	1 rod
4 rods =	100 links
66 feet =	1 chain
80 chains =	1 mile
320 rods =	1 mile
8000 links =	1 mile
5280 feet =	1 mile
1760 yards =	1 mile

SQUARE MEASURE

144 sq. in. =	1 sq. foot
9 sq. feet =	1 sq. yard
30 1/2 sq. yds. =	1 sq. rod
16 sq. rods =	1 sq. chain
1 sq. rod =	272 1/4 sq. ft.
1 sq. ch. =	4356 sq. ft.
10 sq. chs. =	1 acre
160 sq. rods =	1 acre
4840 sq. yds. =	1 acre
43560 sq. ft. =	1 acre
640 acres =	1 sq. mile
1 sq. mile =	1 section
36 sq. miles =	1 Twp.
6 miles sq. =	1 Twp.
1 sq. mi. =	2.59 sq. kilm

An Acre is:

43,560 sq. feet.	660 feet x 66 feet.
165 feet x 264 feet.	160 square rods.
198 feet x 220 feet.	208' 8" square.

or any rectangular tract, the product of the length and width of which totals 43,560 sq. ft.

EXHIBIT VI-4

CONVEYANCE FACILITIES INDEX

Ditch	Wtr#	Basin	Sub Basin	Enf Prt Dt	Prt Dt	Wr Type	Late	Vers	County	Wr Staus	Flow	Vol	Acres
FORT BELKNAP CANAL	40J 150582-00	STOC	40J 40JW	APR 01, 1950	APR 01, 1950	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	300.9 GPM	-	17.70
HAVRE IRRIGATION CO DITCH	40J 24449-00	STOC	40J 40JW	DEC 09, 1901	DEC 09, 1901	STATEMENT OF CLAIM	-	1	HILL	ACTV	59.62 CFS	-	-
HAVRE IRRIGATION CO DITCH	40J 24450-00	STOC	40J 40JW	DEC 09, 1901	DEC 09, 1901	STATEMENT OF CLAIM	-	1	HILL	ACTV	59.62 CFS	9427.50	2693.00
FORT BELKNAP CANAL	40J 40833-00	STOC	40J 40JW	DEC 31, 1895	DEC 31, 1895	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	7 CFS	-	23005.38
FORT BELKNAP CANAL	40J 40830-00	STOC	40J 40JW	DEC 31, 1905	DEC 31, 1905	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	174 CFS	-	23005.38
PARADISE VALLEY CANAL	40J 40838-00	STOC	40J 40JW	DEC 31, 1905	DEC 31, 1905	STATEMENT OF CLAIM	-	3	BLAINE	ACTV	97 CFS	-	11642.11
HARLEM CANAL NO. 1	40J 40841-00	STOC	40J 40JW	DEC 31, 1905	DEC 31, 1905	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	92.4 CFS	-	12455.88
HARLEM CANAL NO. 2	40J 40843-00	STOC	40J 40JW	DEC 31, 1905	DEC 31, 1905	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	16 CFS	-	12455.88
DODSON NORTH CANAL	40J 40933-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV		-	-
DODSON SOUTH CANAL	40J 40933-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV		-	-
DODSON SOUTH CANAL	40J 40934-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	224.4 GPM	200.00	-
DODSON NORTH CANAL	40J 40934-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	224.4 GPM	200.00	-
DODSON SOUTH CANAL	40J 40935-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	250 GPM	10.00	-
DODSON SOUTH CANAL	40J 40936-00	STOC	40J 40JW	DEC 31, 1911	DEC 31, 1911	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	80.78 GPM	70.00	-
DODSON SOUTH CANAL	40J 40940-00	STOC	40J 40JW	DEC 31, 1915	DEC 31, 1915	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	600 CFS	79224.00	-
DODSON SOUTH CANAL	40J 40941-00	STOC	40J 40JW	DEC 31, 1915	DEC 31, 1915	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	600 CFS	79224.00	-
HARLEM CANAL NO. 1	40J 144869-00	STOC	40J 40JW	DEC 31, 1945	DEC 31, 1945	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	1.31 CFS	-	34.60
MAIN CANAL C	40J 155610-00	STOC	40J 40JW	DEC 31, 1957	DEC 31, 1957	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	5 CFS	-	735.00
FORT BELKNAP CANAL	40J 150585-00	STOC	40J 40JW	JUL 01, 1941	JUL 01, 1941	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	2.23 CFS	-	58.75
FORT BELKNAP CANAL	40J 150583-00	STOC	40J 40JW	JUN 30, 1948	JUN 30, 1948	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	282.2 GPM	-	16.60
FORT BELKNAP CANAL	40J 40828-00	STOC	40J 40JW	MAR 21, 1889	MAR 21, 1889	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	195.4 CFS	-	23005.38
FORT BELKNAP CANAL	40J 40829-00	STOC	40J 40JW	MAY 01, 1891	MAY 01, 1891	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	130 CFS	-	23005.38
FORT BELKNAP CANAL	40J 150607-00	STOC	40J 40JW	MAY 01, 1963	MAY 01, 1963	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	85 GPM	-	5.00
FORT BELKNAP CANAL	40J 40832-00	STOC	40J 40JW	MAY 05, 1891	MAY 05, 1891	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	4.4 CFS	-	23005.38
PARADISE VALLEY CANAL	40J 40835-00	STOC	40J 40JW	MAY 05, 1891	MAY 05, 1891	STATEMENT OF CLAIM	-	3	BLAINE	ACTV	34 CFS	-	11642.11
DODSON SOUTH CANAL	40J 182590-00	STOC	40J 40JW	MAY 12, 1953	MAY 12, 1953	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	350 CFS	122.70	-
FORT BELKNAP CANAL	40J 40844-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV		-	-
PARADISE VALLEY CANAL	40J 40845-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV		-	-
HARLEM CANAL NO. 2	40J 40846-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	.2 CFS	-	-
HARLEM CANAL NO. 1	40J 40846-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	.2 CFS	-	-
FORT BELKNAP CANAL	40J 40847-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	107.71 GPM	92.00	-
PARADISE VALLEY CANAL	40J 40848-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	53.86 GPM	47.00	-
HARLEM CANAL NO. 2	40J 40849-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	58.34 GPM	50.00	-
HARLEM CANAL NO. 1	40J 40849-00	STOC	40J 40JW	MAY 25, 1912	MAY 25, 1912	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	58.34 GPM	50.00	-
DODSON NORTH CANAL	40J 40932-00	STOC	40J 40JW	NOV 02, 1903	NOV 02, 1903	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	850 CFS	-	52083.28
DODSON SOUTH CANAL	40J 40932-00	STOC	40J 40JW	NOV 02, 1903	NOV 02, 1903	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	850 CFS	-	52083.28
DODSON SOUTH CANAL	40J 40937-00	STOC	40J 40JW	NOV 02, 1903	NOV 02, 1903	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	600 CFS	3500.00	-
DODSON SOUTH CANAL	40J 40938-00	STOC	40J 40JW	NOV 02, 1903	NOV 02, 1903	STATEMENT OF CLAIM	-	2	PHILLIPS	ACTV	600 CFS	79224.00	-
DODSON SOUTH CANAL	40J 40939-00	STOC	40J 40JW	NOV 02, 1903	NOV 02, 1903	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	157.08 GPM	250.00	-
MATHESON	40J 49689-00	STOC	40J 40JW	OCT 08, 1895	OCT 08, 1895	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	5.49 CFS	-	145.00
PARADISE VALLEY CANAL	40J 40837-00	STOC	40J 40JW	OCT 10, 1900	OCT 10, 1900	STATEMENT OF CLAIM	-	3	BLAINE	ACTV	14 CFS	-	11642.11
PARADISE VALLEY CANAL	40J 40836-00	STOC	40J 40JW	OCT 18, 1895	OCT 18, 1895	STATEMENT OF CLAIM	-	3	BLAINE	ACTV	80 CFS	-	11642.11
HARLEM CANAL NO. 1	40J 40840-00	STOC	40J 40JW	OCT 18, 1895	OCT 18, 1895	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	187.6 CFS	-	12455.88
HARLEM CANAL NO. 2	40J 40842-00	STOC	40J 40JW	OCT 18, 1895	OCT 18, 1895	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	24 CFS	-	12455.88
FORT BELKNAP CANAL	40J 40831-00	STOC	40J 40JW	SEP 19, 1895	SEP 19, 1895	STATEMENT OF CLAIM	-	1	BLAINE	ACTV	19.2 CFS	-	23005.38
DODSON SOUTH CANAL	40J 189872-00	STOC	40J -	MAR 09, 1937	MAR 09, 1937	STATEMENT OF CLAIM	-	1	PHILLIPS	ACTV	280 CFS	8000.00	-

EXHIBIT VI-5

CLAIM NO. _____

**BASIN
CORRECTION**

WAS: _____

NOW: _____

EXPLANATION: _____

CHANGE MADE BY:_____ **DATE:**_____

APPROVED BY (if required):_____ **DATE:**_____

DNRC Supplemental Document

EXHIBIT VI-6

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

RESERVOIR QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973.
Please complete as much of the following information as possible.

A guide for identifying the capacity of reservoirs, lakes, and ponds is attached.

A. Data

1. If a dam is claimed:

- a. Dam height:
- b. Maximum depth (spillway height):
- c. Surface area when full, in acres:
- d. Volume (acre-feet):
Compute as follows: surface area in acres x maximum depth in feet x 0.4 = acre-feet
- e. How were these measurements taken?

2. If a pit is claimed:

- a. Length (feet): Width (feet): Depth (feet):
- b. Volume (acre-feet):
Compute as follows: (Length in feet x width in feet x depth in feet x 0.5)/43, 560 = acre-feet
- c. How were these measurements taken?

3. The reservoir is: on the source _____ off the source _____

B. Operation

- 1. If you have a headgate, drawdown tube or pump for diverting water from the reservoir, how much of your reservoir can you drain?
_____ 1/4 _____ 1/2 _____ 3/4 _____ All or _____ Percent

2. Period of year when water is diverted, impounded or withdrawn from the source into the reservoir (month/day):
_____ to _____
3. Period of year when water is diverted or released from the reservoir for use (month/day):
_____ to _____
4. If the reservoir is off the source, how is water diverted from the source to the reservoir?
 - a. Headgate and/or ditch (dimensions and flow rate):
 - b. Pump (size, type and flow rate):
 - c. Other (give capacity):

C. History and Condition

1. When was the dam/pit built?
2. When was it first used for purpose claimed?
3. Does the reservoir hold water?
4. Is the dam (or dike) washed out or breached?

If so, how long has it been this way?

Do you plan to repair it? If so, when?

5. Has the dam been raised? If so, when?

Did this add to freeboard, capacity, or both?

How much was the capacity increased?

6. Is the reservoir used for other purposes?
Please explain:

D. Additional Remarks

E. Person Completing Questionnaire

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Please return this form to:

**[Office]
[Attention: Specialist's Name]
[Address]
[City, State, Zip Code]**

FOR DEPARTMENT USE ONLY

DNRC Reservoir/Pit Estimate:

Dam Height: _____ ft

Maximum Depth: _____ ft

Surface Area: _____ acres

Capacity: _____ ac-ft

Information obtained:

____ DNRC Data Sources ____ Claim File

____ Outside Data Sources: _____

____ Personal Interview:

 Date/Location _____

____ Telephone Interview:

 Date/Time _____

____ Sent to Claimant: Date _____ Returned: ____ Yes ____ No

Reviewer: _____ Date: _____

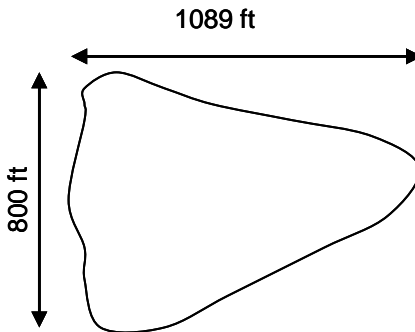
Estimating the Capacity of Reservoirs, Lakes and Ponds

This guide is designed to offer some practical suggestions to help estimate the capacity of reservoirs, small lakes, and ponds. The suggestions are best used for bodies of water under 50 acre-feet in volume.

Capacity estimations can be made by following these steps:

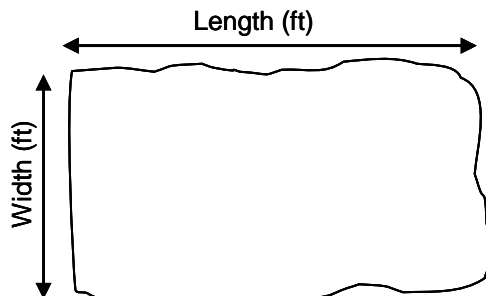
1. Determine the surface area (acres) of the reservoir:

- a. For reservoirs of nearly **triangular shape**, multiply one-half the width times the length and divide by 43,560 (square feet per acre). See the illustration below as to how length is measured.



To Calculate Surface Area (acres) = $(\frac{1}{2} \text{ Width} \times \text{Length}) / 43,560$

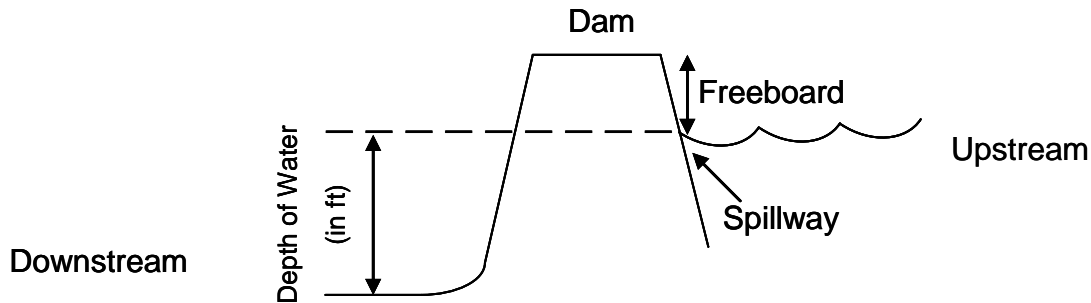
- b. For reservoirs of **rectangular or irregular shape**, measure a rectangular shape that approximates the size and multiply the width times the length and divide by 43,560. See illustration below.



To Calculate Surface Area (acres) = $(\text{Width} \times \text{Length}) / 43,560$

2. Determine the maximum depth of the water.

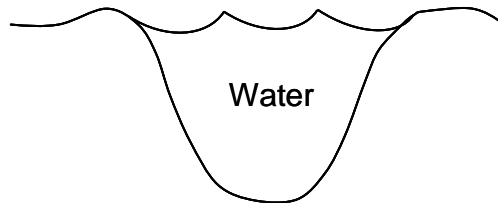
- a. The depth of water can be measured from the lowest point on the downstream side of the dam up to the top of the spillway, as illustrated below. The depth can also be determined by measuring the total height of the dam and subtracting the freeboard.



3. Determine the reservoir capacity.

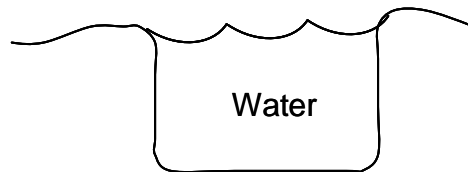
- a. Capacity can be determined by multiplying the surface area (acres) by the maximum depth of water (feet) by 0.4. The 0.4 factor is to allow for V-shaped sides of a reservoir. If the sides and bottom are nearly square, there is no factor.

V-Shaped Reservoir Capacity



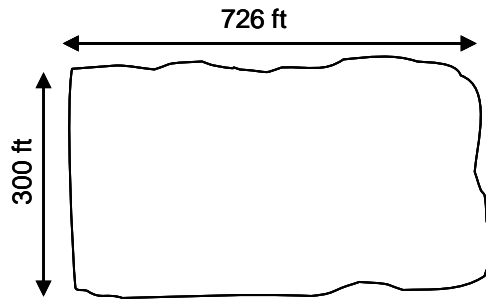
To Calculate Reservoir Capacity: **Surface Area (acres) x Maximum Depth (ft) x 0.4**

Flat Bottom, Square-sided Reservoir Capacity



To Calculate Reservoir Capacity: **Surface Area (acres) x Maximum Depth (ft)**

EXAMPLE:

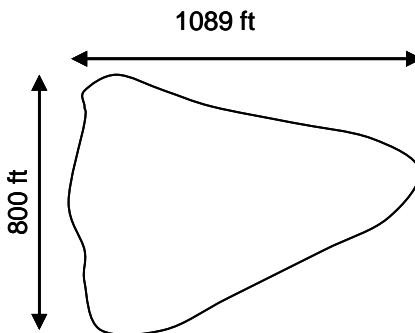


1. Smith Creek Reservoir is approximately 300' in width and 726' in length.

To Calculate Surface Area (acres): **(Width x Length)/43,560**
(300' x 726')/43,560 ft²/acre
= 5 acres

2. Maximum depth measured is 8 feet.
3. The dam was dug, so the bottom is flat and the sides are nearly square.
4. **Capacity = 5 acres x 8 feet = 40 acre-feet.**

EXAMPLE:



1. Trout Reservoir measures 800' in width and 1089' in length.

To Calculate Surface Area (acres): **(½ Width x Length)/43,560**
[(½ x 800') x (1089')]/43,560 ft²/acre
= 10 acres

2. Maximum depth measured is 9 feet.
3. The reservoir was constructed in a coulee, so the sides are v-shaped.
4. **Capacity = 10 acres x 9 feet x 0.4 = 36 acre-feet**

EXHIBIT VI-7

Available at \WATER_RTADJUDICATION\Claim Examination Documents\Questionnaires

IRRIGATION WITH RESERVOIR QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Reservoir purpose.
 - a. Is it used to store water for irrigation later in the year?

If yes, how is water released?
 - b. Is it just used to elevate the water level in order to divert the flow into a ditch or into a field? If yes, then this may just be a diversion dam, not a reservoir.
 - c. Or, is it both?
2. Does the reservoir fill multiple times during the year? If yes, how many times?
3. How much water is applied to the field when you irrigate?
4. How many times per year can you irrigate with water from this source?
5. How is water controlled or spread? (ie. border dikes, spreader dikes, ditches with canvas dams, wild flood, etc.)
6. How is water conveyed to the place of use?
 - a. If it is a ditch, can the ditch carry the entire flow of the source when it is “bank full”?
7. Does the system spread water any time water is available or is it manually released?
8. Source of water.
 - a. How often does it flow?

- b. Is it just runoff from snowmelt and heavy rains?
 - c. Is irrigation timing dependent on water need vs water availability?
9. How many years out of ten are you able to irrigate from this source?
- a. How many of those years are you able to irrigate more than once?
10. Does the reservoir impound water year round?
11. Additional remarks.
12. Person completing questionnaire.

Name: _____
 Address: _____
 Phone: _____
 Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

FOR DEPARTMENT USE ONLY

Information obtained:

_____ DNRC Data Sources _____ Claim File
 _____ Outside Data Sources: _____
 _____ Personal Interview:
 Date/Location _____
 _____ Telephone Interview:
 Date/Time _____
 _____ Sent to Claimant: Date _____ Returned: _____ Yes _____ No

Reviewer: _____ Date: _____

EXHIBIT VI-8

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

RESERVOIR PERIOD OF DIVERSION QUESTIONNAIRE

Return the questionnaire to the [OFFICE] within 30 days. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973.

The period of diversion for the above listed stock water reservoir is January 1 to December 31.

YES _____ NO _____ If no, from _____ to _____

Signed: _____ Date: _____

Please return this form to: [Office]
[Attention: Specialist's Name]
[Address]
[City, State, Zip Code]

EXHIBIT VI-9

Surface Water - Filed Appropriation

122

102493

NOTICE OF WATER RIGHT APPROPRIATION.

TO WHOM IT MAY CONCERN:

NOTICE IS HEREBY GIVEN, That the undersigned, CLYDE SULLIVAN, has appropriated water from the waters of a dry creek coulee in Section Twenty-eight (28), Township Nineteen (19) North of Range Fifty-six (56) East, M. P. M. in Dawson County, Montana, as follows:

I.

The quantity of water claimed is one thousand (1000) gallons per minute.

II.

The purpose for which it is claimed is for the irrigation of about forty (40) acres in the Southeast Quarter (SE $\frac{1}{4}$) of Section Twenty-eight (28), Township Nineteen (19) North of Range Fifty-six (56) East, M. P. M.

III.

The means of diversion shall be by the construction of a dam on a dry creek coulee in the Southeast Quarter (SE $\frac{1}{4}$) of Section Twenty-eight (28), Township Nineteen (19) North of Range Fifty-six (56) East, M. P. M. and diverting into a ditch, the size of which is a V-shaped depth of approximately one and one-half feet.

IV.

The date of appropriation is August 26, 1949.

V.

The name of the appropriator is Clyde Sullivan, post office address, Savage, Montana.

DATED this 26th day of August, A. D. 1949.

Clyde Sullivan

STATE OF MONTANA SS
COUNTY OF DAWSON

DOCUMENT NO. 228964

I HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD THIS 16th DAY OF Sept. A. D. 1949 AT 2 O'CLOCK P.M. AND IS DULY RECORDED IN BOOK D-4 PAGE 421 OF Water Rights

FEE PAID \$2.00 pd.
RETURN TO D. J. O'Neil,
Glendive, Montana.

L. T. ELLIOT
CLERK AND RECORDER
BY *[Signature]*



EXHIBIT VI-10

GW1 - Notice of Appropriation of Groundwater

Form GW 1 Revised 1969
2058-1500-1/71

35650

County Custer

STATE OF MONTANA ADMINISTRATOR OF GROUNDWATER CODE MONTANA WATER RESOURCES BOARD

NOTICE OF APPROPRIATION OF GROUNDWATER (Under Chapter 237, Montana Session Laws, 1961, as amended)

After filing a notice of appropriation, in order to acquire a right based thereon, the person must, within ninety (90) days, commence actual excavation and diligently prosecute construction of a well and, upon its completion, file a notice of completion with the County Clerk of the county in which the appropriation is located.

Three copies of this notice are to be filed with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form may be returned.

1. I, GRIFIN RANCH CO, of LOCATE
(Name of Appropriator) (Address) (Town)

County of CUSTER, State of MONT, intend to appropriate groundwater in accordance with Chapter 237, Montana Session Laws of 1961.

2. The beneficial use to which water is to be applied is LIVESTOCK WATER
(describe lands to be benefited, if for irrigation)

3. The rate of use in gallons per minute or miner's inches of groundwater claimed 10 gpm

The estimated amount of groundwater to be used annually 20000 1000000

4. The annual period (inclusive dates) of intended use year Round

5. The probable or intended date of first beneficial use 6-1-1975

6. The probable or intended date of commencement and completion of the well¹ or wells*

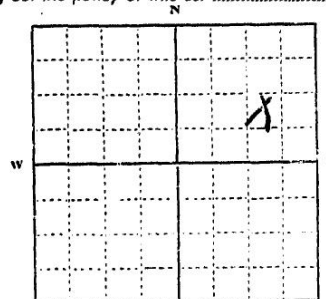
7. The location, type, size and depth of well or wells contemplated 350 ft 3" casing

8. The probable or estimated depth of the water table or artesian aquifer 150 - 350

9. The name, address, and license number of the driller engaged not known

10. Give such other similar information as may be useful in carrying out the policy of this act

For Administrator's Use	
File	<u>35650 4:00 p.m.</u>
	<u>MARCH 2, 1973</u>



SE 1/4 NE 1/4 Sec 3
T. 8 N. R. 51 E. W. S.

LOCATE WELL OR OTHER MEANS OF DEVELOPMENT AS ACCURATELY AS POSSIBLE ON THE PLAT.

Signature of Appropriator Bufoel Griffin Date 3-1-73

*As defined in the Code Sec. 1 (c) "Well" means any artificial opening or excavation in the ground, however made, by which groundwater can be obtained or through which it flows under natural pressures or is artificially withdrawn.

(35650)

EXHIBIT VI-11

GW2 – Notice of Completion of Groundwater Appropriation by Means of Well

Revised 3 GW 2 Revised 1969
STATE PUBLISHING COMPANY

88354

BOOK 203 992
County.....

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
MONTANA WATER RESOURCES BOARD

NOTICE OF COMPLETION OF GROUNDWATER
APPROPRIATION BY MEANS OF WELL

Developed after January 1, 1962

(Under Chapter 237 Montana Session Laws, 1961, as amended)

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, last copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form may be returned.

Owner Don C. Hill

Address Rural Route

Dillon, Montana 59725

Date well started Jan. 7, 1972

completed Jan. 8, 1972

For Administrator's Use

File

GW 1

Type of well Drilled

(Dug, driven, bored or drilled)

Equipment used Churn drill

(Churn drill, rotary or other)

Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐

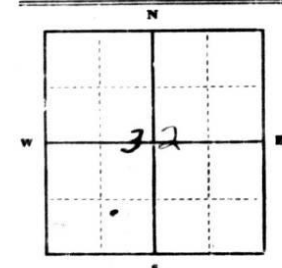
Industrial ☐ Drainage ☐ Other ☐* Garden/Lawn ☐

*Describe

USE: If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e. Lot, Block and Addition).

ESTIMATED ANNUAL WITHDRAWAL 5,000,000 gallons

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
6"	Used 6 5/8" O.D.	1 1/2 up	32	None		



SE 1/4 SW 1/4 Sec. 32
T. 6 S. R. 8 E.
S W

INDICATE LOCATION OF WELL AND PLACE OF USE, IF POSSIBLE.
EACH SMALL SQUARE REPRESENTS 40 ACRES.

Driller's Signature

Carl Hollenstetter

Driller's Address

P.O. Box 5, Dillon, Montana 59725

LICENSE NO. 9

DRILLER'S LOG

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

Top of Ground

(Elev. above sea level)

From (Feet)	To (Feet)	
0	4	surface dirt, sandy loam
4	20	gravel & sand
20	31	gravel and clay or dirt
31	32	coarse & fine gravel
32		finished well

Show exact depth of bottom

EXHIBIT VI-12

GW3 – Notice of Completion of Groundwater Appropriation Without Well

GW3

File No. _____

DUPLICATE

*apparently SW
otherwise GWA*

T. 22 N R. 8E

County Chouteau

RECEIVED

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

STATE ENGINEER

Notice of Completion of Groundwater Appropriation Without Well

(Under Chapter 237 Montana Session Laws, 1961)

Date of Appropriation of Groundwater 1918

Owner J. and Marian Address Highwood, Montana

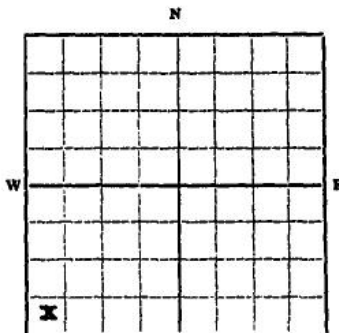
Contractor (if any) none

Address of Contractor

Date Started 1918 Date Completed 1918

Describe means of obtaining groundwater without a well "as by sub-irrigation and other natural processes". Include depth to water when applicable Run-off into reservoir,

1,500,000 gallons capacity



SW 1/4 Sec. 26 T. 22 R. 8E

Indicate point of appropriation and place of use, if possible.

Quantity of water developed and used with explanation of method used to measure or estimate such amount. If use is intermittent estimate approximate lengths of periods of use Used

for livestock 12 months of the year, and for

irrigation 3 months of the year.

Signature of Owner

Marian L. Long

Date 1-12-62

This form to be prepared by contractor (if any), otherwise by the owner.

Three copies of this notice are to be filed with the County Clerk and Recorder of the county in which the works are located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

EXHIBIT VI-13

GW4 - Declaration of Vested Groundwater Rights

GW 4-Hele Independent Record

File No.

103103

T. 75 R. 10 W. 605
County Beaverhead

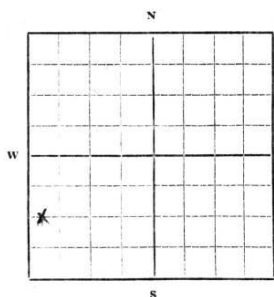
ORIGINAL

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Berg Christensen Co. of Butte Millers
(Name of Appropriator) (Address) (Town)
County of Beaverhead State of Montana
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



S.W. 1/4 Sec. 12, T. 75 R. 10 W.

Indicate point of appropriation
and place of use, if possible.
Each small square represents 10
acres.

2. The beneficial use on which the claim is based Household
3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1955 - Continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 10 gallons
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof Not applicable
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Drilled well - electric pump
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater Not known, no record
8. The depth of water table Static water level 60 feet
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well, 6 inch casing, depth 155 feet
10. The estimated amount of groundwater withdrawn each year 1,500,000
11. The log of formations encountered in the drilling of each well if available Not available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record Not applicable

Signature of Owner

Berg Christensen Co.Date December 16, 1963

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

EXHIBIT VI-14

Reserved Rights Contact Letter

(Use State of Montana Letterhead)

[DATE]

[NAME]

USDI Bureau of Land Management
Montana State Office
Resource Division
5001 Southgate Drive
Billings, MT 59107-6800

RE: Reserved Water Rights in Basin 40J

Dear [NAME]:

At the present time, 738 reserved water right claims exist in the Middle Milk River drainage (Basin 40J). Of those, 729 belong to the U.S. Department of Interior—Bureau of Land Management (BLM). These claims were filed on various sources for wildlife use.

The Montana Department of Natural Resources has the following preliminary questions regarding these claims:

1. Are these claims indeed reserved rights?
2. Does BLM intend to retain them as reserved rights?
3. Does BLM plan on changing any of these claims from a reserved right to a state-based right (use, filed, or decreed)?

A list of Basin 40J reserved water rights is enclosed for your review. After considering the above questions, please contact me at 265-5516 with your decisions.

Thank you for your assistance in this matter. If you have any question, please give me a call.

Sincerely,

[NAME]

Water Resources Specialist

[LOCATION]

Enc.

EXHIBIT VI-15

INDIAN LAND CESSIONS

This exhibit is an explanation of the dates on the Indian Land Cessions map as provided to each regional office.

The purpose is to identify for the Water Court the situations in which a claimed priority date for a particular water right may be located on land which was previously part of an Indian reservation. The question of whether or not the claimed priority date is valid is a legal issue.

The table below gives the dates of Congressional ratification, reference information and Tribes involved for some of the Acts of Congress and Executive orders which reduced specific Indian reservations throughout Montana. This includes only land cessions. References for the Acts of Congress are to Statutes at Large and Executive Orders are referenced by date.

The dates below correspond to the dates of the ceded former reservations which can be seen on the Indian Land Cessions map.

ACTS OF CONGRESS

<u>Date ratified by Congress</u>	<u>Reference</u>	<u>Tribe(s) Involved</u>
March 8, 1859	12 Stats. 975	Flathead, Kootenai, Upper Pend d'Oreille

March 8, 1859 is the date Congress ratified the July 16, 1855 Hell Gate Treaty with the Flathead Indians which ceded the area around what is now the Flathead Indian Reservation in northwestern Montana. The ceded area includes Water Court basins 76B, 76D, 76C, 76LJ, 76J, 76I, 76N, 76L, 76K, 76M, 76F, 76HB, 76HA, 76HH, 76HG, 76HF, 76HE, 76HD, 76HC, 76E, 76GJ, 76G, 76F as shown on the Indian Cessions map.

July 25, 1868	15 Stat. 649	Crow Tribe
----------------------	--------------	------------

July 25, 1868 is the date Congress ratified the May 7, 1868 Treaty with the Crow Tribe at Fort Laramie, Dakota Territory.

February 28, 1877	19 Stat. 254	Sioux, Northern Cheyenne, Arapahoe
--------------------------	--------------	------------------------------------

February 28, 1877 is the date Congress ratified an agreement signed on September 26, 1876, which ratified and changed an April 29, 1868 treaty (ceding land from a reservation belonging to the Sioux, Northern Cheyenne and Arapaho). The ceded reserve was east of where the present-day Northern Cheyenne Reservation is and in Water Court basins 38H, 39F, 39E, 39FJ, 42J, 42I as shown on the Indian Cessions map.

April 11, 1882	22 Stat. 42	Crow
-----------------------	-------------	------

April 11, 1882 is the date Congress ratified the agreement of June 12, 1880 to cede to the United States a portion of the Crow Indian reserve west of the present-day Crow Indian Reservation and in Water Court basins 43B, 43BJ, 43C, 43D as shown on the Indian Cessions map.

EXHIBIT VI-15 (cont.)

May 1, 1888

25 Stat. 113

Gros Ventre, Piegan, Blood,
Blackfeet, River Crow

On May 1, 1888, Congress ratified an agreement made between the United States and the Blackfeet, Gros Ventre, Piegan, Blood and River Crow Indians in 1886 and 1887. The agreement reduced the large reservation of the Tribes (as set aside in 1874) to the smaller and separate Blackfeet, Fort Belknap and Fort Peck Indian Reservations (as in present-day, excepting the 1896 Grinnell agreement cessions from Blackfeet and Fort Belknap reservations). Prior to the 1888 Act, the 1874 reserve ran across the northern part of Montana, stretching from the Continental Divide to the eastern border as shown on the map. The ceded area covers Water Court basins 41L, 40F, 41N, 41P, 40G, 40H, 41T, 40J, 40I, 40EJ, 40M, 40E, 40K, 40L, 40N, 40O, 40S, 40Q, 40R, 40P, 42M as shown on the Indian Cessions map.

March 3, 1891

126 Stat. 1039

Crow

On March 3, 1891 Congress ratified an agreement made between the United States and the Crow Tribe on December 8, 1890, which reduced the size of the Crow Reservation as shown on the map to the west of the current reservation location. Water Court basins are 43N, 43D, 43C, 43QJ, 43Q, 43P, 43B, 43BJ as shown on the Indian Cessions map.

June 10, 1896

29 Stat. 350, 353

Blackfeet: Gros
Ventre, Piegan, Blood
River Crow

On June 10, 1896, Congress ratified the Grinnell agreement of September 26, 1895, between the United States and the Blackfeet (and other Tribes as above) on, for the cession of a portion of the Blackfeet Reservation along the western edge of the present-day reservation. The Water Court basins are 40T, 40F, and 41M as shown on the Indian Cessions map.

June 10, 1896

29 Stat. 350

Fort Belknap: Assiniboine,
Gros Ventre

On June 10, 1896, Congress ratified the Grinnell agreement of October 9, 1895, between the United States and the Gros Ventre and Assiniboine of Fort Belknap Indian Reservation ceding a portion out of the southern part of their reservation. The Water Court basins are 40EJ, 40I and 40M as shown on the Indian Cessions map.

April 27, 1904

33 Stat. 352

Crow

On April 27, 1904, Congress ratified an agreement made on August 14, 1899 between the United States and the Crow Indians for a portion of the Crow Reservation now known as the Ceded Strip. The area ceded is north of the present-day northern boundary of the reservation. The Water Court basins are 42KJ, 43P and 43Q as shown on the Indian Cessions map.

EXHIBIT VI-15 (cont.)

EXECUTIVE ORDERS

Date of Executive Order

Tribe(s) Involved

April 12, 1870

Gros Ventre, Arickaree, Mandan

April 12, 1870 is the date of the Executive Order signed by President Grant which withheld the area shown on the Montana map as part of the Fort Berthold Reservation in Dakota and Montana territories. The area was returned to the public domain by an Executive Order on July 13, 1880; see below.

July 5, 1873

Gros Ventre, Piegan, Blood,
Blackfeet, River Crow

July 5, 1873 is the date of the Executive Order signed by President Grant which withheld from entry and settlement of public lands an area of 2,750 square miles; established by treaties of October 17, 1855, July 18, 1866, and July 13 and 15 and September 1, 1868 (unratified), and act of April 15, 1874 (18 Stat., 28), and act of May 1, 1888 (25 Stat., 129), for the Blackfeet, Gros Ventre, Piegan, Blood and River Crow Tribes, as shown on the Indian Cessions map. The area included Water Court basins 40A, 40B, 40C, 40EJ, 41A, 41B, 41C, 41D, 41E, 41F, 41G, 41H, 41I, 41J, 41K, 41Q, 41QJ, 41R, 41S, 41T, 41U, 43A, 43B as shown on the Indian Cessions map.

August 19, 1874

Gros Ventre, Piegan, Blood,
Blackfeet, River Crow

This August 19, 1874 Executive Order reduced the area reserved in the 1873 Executive Order, and land primarily south of the present-day Blackfeet Reservation was ceded from the Blackfeet, Gros Ventre, Piegan, Blood and River Crow and returned to the public domain. The area ceded is in Water Court basins 41K, 41M, 41O, 41P and 41Q according to the Indian Land Cessions map.

July 13, 1880

Arickaree, Gros Ventre, Mandan

This Executive Order returned to public domain a large area in eastern Montana, part of which had been set aside April 12, 1870 for the Gros Ventre, Arickaree and Mandan as the Fort Berthold Reservation. Some of the area, which is south of Fort Peck and north and east of Crow and Northern Cheyenne reservations had been set aside in 1875 as an addition to the reservation of the Blackfeet, Gros Ventre, Piegan, Blood and River Crow. The area ceded is in Water Court basins 40C, 40D, 40E, 40P, 42M, 42L, 42J, 39G, 39H, 39FJ as shown on the Indian Cessions map.

Sources: 18th Annual Report of the Bureau of American Ethnology, to the Secretary of the Smithsonian Institution, 1896-1897; and Kappler, Charles J. Indian Affairs: Laws and Treaties, Vol I-III.

EXHIBIT VI-15 (cont.)

SOURCES FOR ACTS OF CONGRESS and EXECUTIVE ORDERS

From: Kappler, Charles J. <http://digital.library.okstate.edu/kappler/>

<u>Date ratified by Congress</u>	<u>Reference</u>	<u>Tribe(s) Involved</u>
March 8, 1859 http://digital.library.okstate.edu/kappler/Vol2/treaties/fla0722.htm	12 Stats. 975	Flathead, Kootenai, Upper Pend d'Oreille
February 28, 1877 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0168.html#p169	19 Stat. 254	Sioux, Northern Cheyenne, Arapahoe
April 11, 1882 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0195.html#p195	22 Stat. 42	Crow
May 1, 1888 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0261.html#p262	25 Stat. 113	Gros Ventre, Piegan, Blood, Blackfeet, River Crow
March 3, 1891 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0407.html#sec31	126 Stat. 1039	Crow
June 10, 1896 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0597.html#sec9	29 Stat. 350, 353	Blackfeet: Gros Ventre, Piegan, Blood, River Crow
June 10, 1896 http://digital.library.okstate.edu/kappler/Vol1/HTML_files/SES0597.html#sec8	29 Stat. 350	Fort Belknap: Assiniboine, Gros Ventre
April 27, 1904 http://digital.library.okstate.edu/kappler/Vol3/HTML_files/SES0087.html#p87A	33 Stat. 352	Crow

EXHIBIT VI-15 (cont.)

Date of Executive Order

Tribe(s) Involved

April 12, 1870
http://digital.library.okstate.edu/kappler/Vol1/HTML_files/NOR0881.html

July 5, 1873
http://digital.library.okstate.edu/kappler/Vol1/HTML_files/MON0854.html#mt

August 19, 1874
http://digital.library.okstate.edu/kappler/Vol1/HTML_files/MON0854.html#mt

July 13, 1880
http://digital.library.okstate.edu/kappler/Vol1/HTML_files/MON0854.html

EXHIBIT VI-16

**REQUEST AUTHORIZATION TO EXAMINE MEMORANDUM
(Use State of Montana Letterhead)**

TO: Montana Water Court

FROM: [NAME], Water Resource Specialist
[LOCATION]

DATE: MM/DD/YYYY

RE: 000000-00 and 000000-00

CC: [CLAIMANT NAME]

Water rights 41F 000000-00 and 41F 000000-00 were originally verified with basin 41F (verification abstract signed in 1984 and 1983, respectively). The water rights both have a point of diversion in basin 41F on the Madison River, West Fork. The place of use for both water rights (original version) is in basin 41A. The DNRC examination manual states that interbasin claims that were decreed in one basin prior to 1992 under the verification procedures should be reviewed again with the claim examination rules currently being used to process the other basin.

At this time, I would like to request Water Court approval to examine claims 41F 000000-00 and 41F 000000-00 as part of the basin 41A claim examination process.

Thank you for your attention to this matter.

EXHIBIT VII-1

HISTORY OF FLOW RATE GUIDELINES

INTRA-OFFICE MEMORANDUM

TO: Leanne Schraudner
FROM: Robert G. Arrington, Agricultural Engineer
DATE: February 19, 1982
RE: Determining Equitable Flow Rates

A reasonable flow rate requirement per acre to be used on irrigated lands in Montana is hard to estimate. Manuals used in designing flood and sprinkler type systems consider many site-specific factors which will vary from farm to farm.

As an example, the different factors that must be known to determine flood flow rate for a level border/system are: 1) Manning's coefficient (expresses the flow-retardance effects of different hydraulic boundary conditions), 2) intake characteristics of the soil, 3) net depth of application, 4) length of border, and 5) on-farm efficiency. After each of these variables is determined, the required flow rate at the farm headgate for one level border strip can be found. The actual flow rate from the point of diversion from the source will be a function of conveyance efficiency, irrigation interval and acres irrigated.

Applying water efficiently by flooding methods is a difficult but important problem. If water is applied over the surface too quickly, an insufficient amount will percolate into the soil and erosion may occur. On the other hand, if water is kept on the soil surface too long, waste will result from percolation beyond the root zone. It is, therefore, important that the proper size flow of water be diverted from the source so that conveyance losses are accounted for and that high application efficiencies are maintained.

EXHIBIT VII-1 (cont.)

Estimation of flow rate per acre using the Soil Conservation Service flood design manuals will not be used since generalization of the required site-specific factors is unrealistic. Instead, two different approaches to determining flow rate per acre have been proposed which seem to give fairly consistent results depending on the assumed values used.

The first approach is based on a formula found in the instruction booklet, How to Fill Out Your Statement of Claim For Existing Water Rights. The formula is used to estimate the volume of water required during the irrigation season. If the volume required is known, the formula can be rearranged and solved for flow rate.

The second approach uses a formula for estimating irrigation system capacity which is then used for design purposes. The actual capacity of the system, which may be higher than the estimated system capacity from the formula, is dependent on many site-specific factors such as intake rate of the soil, spacing of sprinklers and laterals, and nozzle size, type and pressure. This second approach is used by irrigation designers to determine the minimum capacity of a system, whether it be sprinkler or flood.

EXHIBIT VII-1 (cont.)

A) FLOW RATE BASED ON ACCEPTABLE VOLUMES

Flow rates can be determined using the same formula as that used in finding seasonal volumes if the number of 24 hour days are known.

Seasonal volumes can be shown from the formula:

$$Ac\ Ft = \frac{(Q\ gpm)(24\ hr\ days)}{225} \quad Eq\ 1$$

Rearranging and substituting Ac Ft/Ac for volume, the flow rate per acre can be determined:

$$Q\ \frac{gpm}{ac} = \frac{(Volume\ Ac\ Ft/Ac)(225)}{(24\ hr\ days)} \quad Eq\ 2$$

To show how Equation 2 can be used to calculate flow rate per acre, the Madison Drainage (41F) has been picked as an example. The Madison Drainage contains three climatic areas. Volumes for each climatic area from the point of diversion from the source have been proposed based on 74.8% conveyance and 40% on-farm efficiency (overall efficiency = 30%). These proposed volumes are in a Memorandum entitled Proposed Methodology For Volumes (December 8, 1981). The irrigation period is normally from April 15 through October 15 or approximately 180 days. The number of 24 hour days needed for flood irrigation has been assumed. Proposed volumes and number of 24 hour irrigation days are presented in Table 1.

Table 1. DATA TO BE USED IN EQUATION 2

Climatic Area	Volume	Irrigation Period
III	5.47 AF/A	90 days
IV	4.67 AF/A	85 days
V	3.33 AF/A	80 days

EXHIBIT VII-1 (cont.)

Using the proposed volumes and assumed number of 24 hour irrigation days in Table 1 as reasonable figures, Equation 2 can be used to calculate flow rate per acre, which is presented in Table 2.

Table 2. FLOW RATE PER ACRE IN MADISON DRAINAGE

<u>Climatic Area</u>	<u>Flow Rate (Q)</u>
III	13.7 gpm/acre
IV	12.4 gpm/acre
V	9.4 gpm/acre

It should be pointed out that if the overall efficiency for the majority of the irrigation systems in a drainage basin is actually higher than those suggested in the December 8, 1981 Memorandum, then the required volume per acre is reduced and thus reduces the flow rate requirement. Conversely, if the number of twenty-four hour days is absurd and should be less, the flow rate per acre requirement would be increased.

These two factors can work against or in conjunction with each other to give varying results. As an example, if the overall efficiency for the majority of the systems in the Madison Drainage is actually 35% instead of 30% and if the number of 24 hour irrigation days for Climatic Area III is 70 days instead of 90 days, the flow rate requirement is 15.6 gpm/acre instead of 13.7 gpm/acre.

EXHIBIT VII-1 (cont.)

B) FLOW RATE BASED ON PEAK WATER USE REQUIREMENTS

The required flow rate capacity of a system must be large enough to satisfy peak water use requirements of the crop and to overcome deep percolation, surface runoff, and non-uniformity of application. The minimum size irrigation flow rate required to satisfy these criteria can be shown from the formula:

$$Q = 453 \frac{(A) (D)}{(F) (H)} \quad \text{Eq. 1}$$

Where:

Q = flow rate in gallons per minute

A = area in acres

D = gross application in inches (note: D is equal
to net application divided by on-farm efficiency)

F = irrigation period in days

H = operating hours per day

The irrigation period (F) is the number of days allowed to apply one irrigation for a given design area. For purposes of operation and safety, the irrigation period must be equal to or less than the irrigation interval. The irrigation interval is defined as:

$$\text{Irrigation Interval (I)} = \frac{\text{Net Water Applied (inches)}}{\text{Peak Use Rate (inches/day)}}$$

To find the total flow rate necessary from the point of diversion from the source, Equation 1 must be divided by conveyance efficiency.

EXHIBIT VII-1 (cont.)

EXAMPLE

Find the required flow rate per acre for a farm located in the Madison Drainage.

Assumptions:

Soils - mostly silt loam and clay loam

Crop - alfalfa

Root Zone - 4 ft

Peak Use Rate - .23 inches/day (Climatic Area IV)

Available Waterholding Capacity AWC = 1.9 inches/foot

Net Irrigation Requirement $NIR = \left(1.9 \frac{\text{inches}}{\text{foot}}\right) (4 \text{ feet}) (.5)$

$NIR = 3.8 \text{ inches}$

$\text{Irrigation Interval} = \frac{3.8 \text{ inches}}{.23 \text{ inch/day}} = 16.5 \text{ days}$

$D = \frac{NIR}{\text{On-farm Eff.}} = \frac{3.8}{.4} = 9.5 \text{ inches}$

F = 14 days

H = 11 hrs/day or 22 hrs/day

A = 100 acres

SOLUTION

H = 11 hrs/day

Q = 2795 gpm (for 100 acres)

Q = 28 gpm/ac = 2.5 MI/acre (at farm headgate)

Q = 37 gpm/ac = 3.3 MI/acre (at POD)

H = 22 hrs/day

Q = 1398 gpm (for 100 acres)

Q = 14 gpm/acre = 1.25 MI/acre (at farm headgate)

Q = 19 gpm/acre = 1.7 MI/acre (at POD)

EXHIBIT VII-1 (cont.)

Most flood systems would use 22 hours as the number of operating hours per day, which would require 1.7 miner's inches per acre from the point of diversion. Sprinkler irrigation systems usually have a maximum of 11 hours per set, no conveyance losses, and generally have an on-farm efficiency of 60% or better. Using these facts, a sprinkler system would require 0.9 miner's inches per acre from the point of diversion.

Based on the generalized assumptions that are used, however, different flow rates per acre can be estimated. As an example, if the overall efficiency for the majority of the flood systems in the Madison Drainage is actually 35% instead of 30% and if 22 operating hours per day is used, the flow rate requirement from the point of diversion would be 1.5 MI/acre instead of 1.7 MI/acre.

EXHIBIT VII-1 (cont.)

SUMMARY

In selecting the proper application method and planning an irrigation system for a farm, many factors must be taken into consideration such as topography, soils, water supply, and crops. Flow rate is based on these different factors; therefore, flow rate per acre for two different farms will not necessarily be the same. At the same time, based on the two approaches discussed, a flow rate per acre can be chosen which should be sufficient to cover most of the cases and still be realistic and equitable.

The factor that seems to have the greatest unrealistic influence on estimating flow rate per acre is the overall efficiency used for a drainage basin. Overall efficiency is the amount of water consumptively used by the crop versus the amount diverted from the source. In many cases, irrigators will divert water into canals 24 hours per day for the entire irrigation season, which will reflect extremely low overall efficiencies, but is the water really being put to beneficial use the entire time? The actual number of days the water is put to beneficial use is generally much less. Low overall efficiencies can affect higher flow rates per acre than is necessary or reasonable.

For Climatic Area IV, the first approach (A) estimated flow rate at 12.4 gpm/acre while the second approach (B) determined flow rate to be 19 gpm/acre. The difference between these figures can be attributed to debatable slight errors in both approaches.

Most flood irrigators rarely go over a field more than 3 or 4 times. The number of 24 hour days to irrigate a field once will vary from 14 to 21 days depending mostly on operational management. Assuming that 21 days are required to cover a field once and that the field is flood irrigated three times, then 63 twenty-four hour days are required during the growing season to adequately irrigate the crop. Refiguring the first approach (A)

EXHIBIT VII-1 (cont.)

based on 63 days yields a flow rate of 16.7 gpm/acre.

If the majority of flood systems in the Madison have an overall efficiency of 35% instead of 30%, as used in the second approach (B), then flow rate requirement from the point of diversion would be 16.4 gpm/acre.

Considering the different justifiable variables possible for each of the two approaches used, it would appear that a maximum flow rate of 1.5 MI/acre would be an acceptable, fair and equitable flow rate standard.

The flow rate standard of 1 MI/acre seems to be well documented and used in case law. This standard is also used extensively by other western states. I contend that based on the two procedures of calculating flow rate used in this report, that 1 MI/acre is not sufficient for most flood systems when flow rates are defined from the point of diversion from the source. Looking at it from another approach, if 1 MI/acre is chosen, this correlates to an overall efficiency for the state of approximately 60%.

MP 9

EXHIBIT VII-1 (cont.)

OPTIONS

There appear to be three options for handling flow rate requirements which are:

1. Choose one flow rate of 1.5 MI/acre to be used as the standard on a statewide basis.
2. Adopt two flow rate standards. The first standard of 1 MI/acre could be used quite justifiably for all sprinkler systems and for flood systems with delivery canals from POD to POU of less than one mile. Flood systems with delivery canals greater than one mile would use the 1.5 MI/acre standard.
3. Adopt flow rate stand/ by climatic area. The following table is a suggested recommendation:

<u>Climatic Area</u>	<u>Flow Rate Standard</u>
I	1.25 MI/acre
II	1.25 MI/acre
III	1.50 MI/acre
IV	1.50 MI/acre
V	1.50 MI/acre

EXHIBIT VII-1 (cont.)

RECOMMENDATION

No matter which option is chosen, the flow rate standard should be used as a "capping" function. This means that claims greater than the standard should be reduced to the standard and claims less than the standard would remain as they are. The standard would apply only to filed notices and use rights. Decreed flow rate would not be changed.

Claimants that have had their flow rates reduced should have the option of supplying further documentation and proof to support a claim greater than the standard. A claimant in this situation should be contacted prior to the preliminary decree so that this particular issue could be clarified using DNRC personnel.

When supplemental rights occur, a claimant should not be allowed to divert more water at any time period than the standard. A "catch all" statement should be used which would limit the claimant to the standard even though the combined rights may be greater. This "catch all" statement should also apply to supplemental rights, including decreed rights.

In trying to decide which option would be best, I think it should be kept in mind that, if possible, the computer should be used to reduce flow rates greater than the standard. Based on this criteria, option 2. would be eliminated. The only way this option would be feasible would be if DNRC field people gave claims a code designation signifying one standard or the other.

I think the logic behind option 2. is sound and that the option should still be considered. The two approaches used for developing and justifying 1.5 MI/acre could easily be used to support 1.0 MI/acre for sprinkler systems and flood systems with less than one mile of delivery canal.

Table C-11 (Basic Water and Land Use Data - Upper Missouri Region)

MP 11.

EXHIBIT VII-1 (cont.)

gives an outline of water use on irrigation projects operated by the Bureau of Reclamation. The accompanying map shows the location of each of these projects. The table shows present project efficiency or overall efficiency based on 1971 to 1975 average for each of the study areas. The table and map were obtained from a report entitled Water Conservation Opportunities by the Bureau of Reclamation and Bureau of Indian Affairs in September of 1978.

If these overall efficiencies are indicative of private irrigation projects found in the eastern half of the state, then option three should be deleted. A flow rate greater than 1.25 MI/acre would be required for climatic areas one and two.

It is my opinion and recommendation that option 1. should be used. A flow rate of 1.5 MI/acre should be used as the standard on a statewide basis.

EXHIBIT VII-1 (cont.)

Table C-11. - Basic water and land use data*
Upper Missouri Region - Reclamation

Study areas	Total irrigated acres	Annual irrigation diversion (AF)	Water not used by crops					Total (AF)	Farm delivery (AF/A)	Water consumed per acre (AF)	Present project efficiency (per cent)
			Ground water (AF)	Down-stream (AF)	Evapotranspiration and wildlife habitat (AF)	Other (AF)	Lost to further use (AF)				
UM01 Riverton Unit	56,707	317,300	10,000	134,000	22,000	18,000	37,000	221,000	3.0	1.70	30
UM02 Lower Yellowstone Project	44,822	333,400	10,000	182,800	0	29,000	56,200	264,000	1.8	1.10	14
UM03 Huntley Project	24,806	132,600	5,000	67,900	0	11,000	20,300	104,200	2.2	1.14	21
UM04 Heart Mountain ID	25,243	203,000	5,000	122,700	500	6,700	35,300	170,200	4.0	1.30	15
UM05 Chinook Division	34,193	111,500	3,100	51,000	0	7,700	15,500	77,300	0.9	1.00	30
UM06 Malta ID	36,356	120,000	3,500	55,000	6,400	8,200	10,500	83,600	0.8	1.00	30
UM07 Glasgow ID	12,139	57,900	2,100	30,000	0	4,500	9,200	45,800	1.1	1.00	20
UM08 Greenfields ID	72,034	261,500	20,000	75,000	0	58,000	37,000	190,000	1.7	0.99	27
UM09 Fort Shaw ID	9,119	42,400	7,000	16,000	0	5,000	5,000	33,000	2.0	1.03	22
UM10 Buffalo Rapids Project	20,429	82,000	5,000	37,000	0	6,000	12,000	60,000	2.0	1.08	26
UM11 Shoshone ID	32,494	198,500	5,000	112,300	0	8,600	30,400	156,300	3.6	1.30	21
UM12 Deaver ID	12,833	78,400	2,000	42,300	0	3,400	12,000	59,700	3.9	1.46	23
UM13 Hillwood ID	10,446	99,600	2,000	62,500	0	5,500	16,000	86,000	6.8	1.30	13

*Average for years 1971 to 1975.

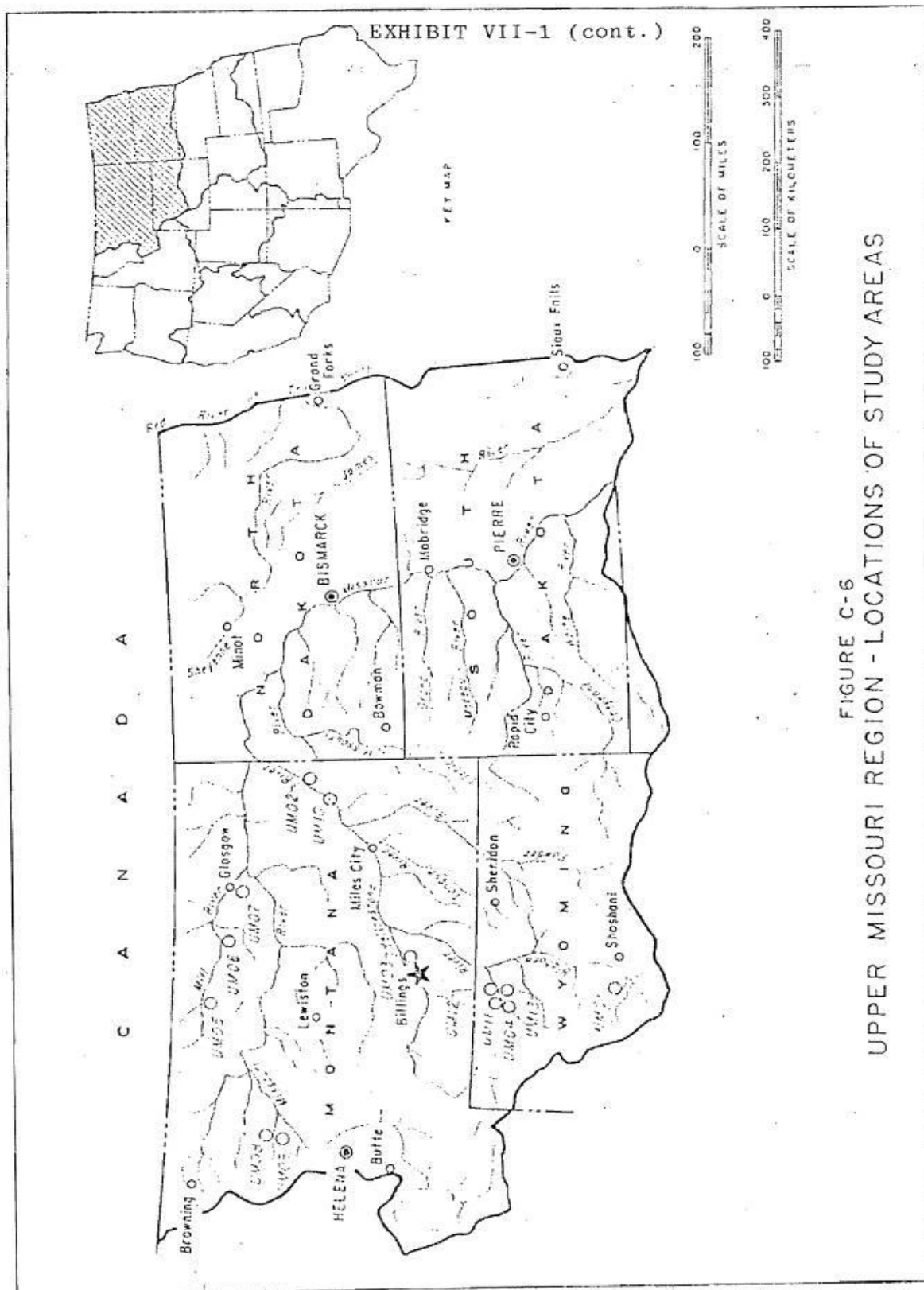


FIGURE C-6
UPPER MISSOURI REGION - LOCATIONS OF STUDY AREAS

C-41

EXHIBIT VII-1 (cont.)
DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION



TED SCHWINDEN, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

(406) 449-3712

HELENA, MONTANA 59620

MEMORANDUM

TO: Mark O'Keefe, Adjudication Program
Manager

FROM: Robert G. Arrington, Irrigation Specialist

SUBJECT: Quantitative Limitations of Western States

DATE: August 21, 1981

In the water right statutes of many western states are limitations upon the flow rate and volume of water that may be used per acre of land devoted to agriculture under irrigation. In addition to these statutory limitations, many states have adopted operating policies set by the administrator of the controlling water right agency which further quantifies flow rate and volume.

The following pages are a synopsis of statutes and operating policies used by other western states. The statutes of Montana do not address quantitative limitations of water use within the state. The intent of this memorandum is to gain insight into the flow rate and volume parameters set by other states so that a logical approach can be taken in establishing Montana's water standards.

Enclosures

RGA/pg

"AN EQUAL OPPORTUNITY EMPLOYER"

Miner's Inch Water Measurement

The miner's inch is defined as the quantity of water that will flow through an opening 1 inch square in a vertical wall under a given pressure head. Pressure heads ranging from 4 to 7 inches were used by the miners and settlers. Each of the western states defines the miner's inch in terms of 1cfs.

One miner's inch is designated as 1/50 cfs in southern California, Idaho, Kansas, New Mexico, North Dakota, South Dakota, and Nebraska.

In Arizona, Northern California, Montana, Nevada, and Oregon, one miner's inch is equal to 1/40 cfs.

In Colorado 38.4 miner's inches is considered equal to 1 cfs.

Nebraska

The statutes in Nebraska state that:

"For irrigation purposes, the limit is 1 cfs for 70 acres, or 3 acre-feet per acre in the aggregate each year. However, for irrigation of 40 acres or less, where the statutory limit is too small for proper distribution and application of water, additional heads of water may be allotted for limited times. Stores water appropriations for irrigation are limited to 3 acre-feet per acre in a calendar year."

The limitations outlined in the statutes apply to both flood and sprinkler systems.

Nebraska adjudicated their existing water rights and have been issuing new permits since 1895. One interesting facet of their permit system is that a time limit is imposed to perfecting a new right. At the end of the time limit if the applicant has not put into production all land covered in the original application, then the permit is prorated downward according to the statutes for the actual acreage being irrigated.

EXHIBIT VII-1 (cont.)

North Dakota

The only statute concerning irrigation regulates the maximum volume allowed at 24 inches per acre per annum.

The state claimed all the water in 1889 and started issuing permits in the early 1900's. A fire in 1933 burned all the records. In 1961 the state passed legislation to reregister all prescriptive rights and also start a new permit system. To date, the state has a total of 3,500 prescriptive rights and new permits.

Approximately 65 percent of the state has sprinkler irrigation systems. Applications for permits are looked at on a case-by-case basis with the following criteria used as design standards:

1. 18 inches per acre per growing season
2. 6 gpm per acre per growing season

Greater volume and flow rates can be approved if the irrigator can show proof of additional need.

Wyoming

The statutes in Wyoming state that:

"For direct use of the natural unstored flow of any stream, no allotment may exceed 1 cfs for each 70 acres for which the appropriation is made. However, a statute enacted in 1945 provided for allocation to holders of adjudicated or permit rights, with priority as of March 1, 1945, rights in the surplus waters (over and beyond existing appropriations) of the stream in question, not to exceed (1) 1 cfs per 70 acres of irrigated land and (2) his proportionate share of previously appropriated water. The limitation does not apply to reservoir storage water."

The statute of 1 cfs per 70 acres and a permit system have been in effect since the territorial days. Wyoming does not address volume requirements.

EXHIBIT VII-1 (cont.)

South Dakota

The statutes in South Dakota state:

"For irrigation, the allowance does not exceed 1 cfs per 70 acres, or the equivalent thereof, not to exceed 2 acre-feet per acre, delivered on the land for a specified time in each year. However, this limitation does not apply at times when the flood flow of a stream much exceeds the quantity required for approved rights thereon."

Idaho

The statutes in Idaho state that:

"No permit shall authorize the diversion for irrigation purposes of more than 1 cfs for each 50 acres of land, or more than 5 acre-feet of stored water per acre per annum, unless the administrator finds a greater quantity to be necessary. No license or court decree shall confirm the right to use more than 1 cfs per 50 acres unless the administrator or the court so decides."

Based on the statutes and studies done by the Soil Conservation Service, the Water Resources Bureau has adopted the following limitations:

1. 5 ac ft/ac and 1 MI(1/50 cfs)/ac for irrigated land south of the Snake River
2. 3-4.5 ac ft/ac and 1 MI(1/50 cfs)/ac for irrigated land north of the Snake River

The limitations set forth are for total volume and maximum flow rate at the place of use (POU) and applies to both sprinkler and flow systems. Applicants may request and receive higher flow rates from the point of diversion (POD) if they show proof that their conveyance losses warrant additional flow rate so that the 1 MI/ac parameter is met at the POU.

EXHIBIT VII-1 (cont.)

Nevada

The statutes of Nevada state that: (533.070)

1. The quantity of water from either a surface or underground source which may hereafter be appropriated in this state shall be limited to such water as shall reasonably be required for the beneficial use to be served.
2. Where the water is to be diverted for irrigation purposes, or where the water is to be stored for subsequent irrigation purposes, the state engineer in determining the amount of water to be granted in a permit to appropriate water shall take into consideration the irrigation requirements in the section of the state in which the appropriation is to be made. The state engineer shall consider the duty of water as theretofore established by court decree or by experimental work in such area or as near thereto as possible. He shall also consider the growing season, type of culture, and reasonable transportation losses of water up to where the main ditch or channel enters or becomes adjacent to the land to be irrigated, and may consider any other pertinent data deemed necessary to arrive at the reasonable duty of water. In addition, in the case of storage of water, reservoir evaporation losses should be taken into consideration in determining the acre-footage of storage to be granted in a permit.

Based on the statutes, Nevada has adopted the following limitations in regard to appropriation of public water for irrigation purposes.

Nevada Continued

1. 4 ac ft/ac is the maximum allowable at the place of use for all northern townships.
2. 5 ac ft/ac is the maximum allowable at the place of use for all southern townships.
3. Flow rate is based on number of acres irrigated (see accompanying pages). This flow rate limitation is at the place of use; therefore the irrigator may divert a greater flow rate from the point of diversion to account for conveyance losses.

A permit system has been in effect in Nevada since March 22, 1913. Permits are required for irrigation, stock, municipal, and commercial purposes. Volume requirements have been set (see accompanying pages). Domestic use does not require a permit but is limited to 1,800 gpd.

EXHIBIT VII-1 (cont.)

DUTIES

(Quasi-Municipal - Commercial, etc.)

House	Per Unit	1000 gpd
House (Lake Tahoe)	Per Unit	500 gpd
Mobile Home	Per Unit	300 gpd
Apartment	Per Unit	250 gpd
Motel	Per Unit	100 gpd
Motel (Las Vegas)	Per Unit	200 gpd
Bar (Medium)	Per Unit	350 gpd
Restaurant (Medium)	Per Unit	1000 gpd
Drive-in	Per Unit	500 gpd
Service Station	Per Unit	1500 gpd
Garage	Per Unit	500 gpd
Office Building	Per Unit	50 gpd
Warehouse (Storage)	Per Unit	250 gpd
Store (Retail)	Per Unit	200 gpd
Beauty Shop	Per Unit	300 gpd
Barber Shop	Per Unit	200 gpd
Laundromat (Per machine)	Per Unit	100 gpd
Supermarket	Per Unit	1000 gpd
Car Wash (Coin-operated)	Per Unit	300 gpd
Veterinarian Clinic	Per Unit	1000 gpd
R.V. Park (Per Space)	Per Unit	50 gpd

EXHIBIT VII-1 (cont.)

DUTIES - STOCKWATERING

Cattle and Horses - 20 gpd - 0.00003125 cfs/head
 Sheep - 4 gpd - 0.00000625 cfs/head

10 Cattle - 0.0003125 cfs	10 Sheep - 0.0000625 cfs
50 Cattle - 0.0016625 cfs	50 sheep - 0.0003125 cfs
100 Cattle - 0.0031 cfs	100 Sheep - 0.00062 cfs
200 Cattle - 0.062 cfs	200 Sheep - 0.0012 cfs
300 Cattle - 0.0094 cfs	300 Sheep - 0.0019 cfs
400 Cattle - 0.0125 cfs	400 Sheep - 0.0025 cfs
500 Cattle - 0.0156 cfs	500 Sheep - 0.0031 cfs
1000 Cattle - 0.0312 cfs	1000 Sheep - 0.0062 cfs

CONVERSION TABLE

Amounts of Water Allowed on Permits

Equivalents

5.4 cfs = 2,423.68 gpm for 320 acres	0.5 cfs = 224.41 gpm
4.7 cfs = 2,109.50 gpm for 280 acres	0.4 cfs = 179.53 gpm
4.0 cfs = 1,795.32 gpm for 240 acres	0.3 cfs = 134.64 gpm
3.4 cfs = 1,526.02 gpm for 200 acres	0.2 cfs = 89.76 gpm
2.7 cfs = 1,211.84 gpm for 160 acres	0.1 cfs = 44.88 gpm
2.4 cfs = 1,077.19 gpm for 120 acres	
1.7 cfs = 763.01 gpm for 80 acres	
1.0 cfs = 488.83 gpm for 40 acres	

0.00223 cfs = 1 gpm = 1,440 gallons per day
 1 cfs = 448.83 gpm or 1,983 acre-feet per 24 hours
 0.504 cfs = 226.21 gpm or 1 acre-foot per 24 hours
 Diversion x 1.983 x days = acre-feet per season

Utah

The adjudication process in Utah is proceeding on a basin by basin approach. The court orders the State Engineer to make a determination of all rights to the use of water, both surface and underground, within a drainage area.

In making a recommendation for the Proposed Determination of Water Rights for a drainage, the State Engineer has set irrigation volume requirements in acre-feet per acre per calendar year as measured at the field headgate (POU).

Consumptive use of the crop is calculated using the modified Blaney-Criddle method for a period of use extending between the last 28°F frost in the spring and the first 28°F in the fall. Effective precipitation during this period of use is evaluated and subtracted from the consumptive use to give a net irrigation requirement. Application losses are based on what is considered reasonable for an area and added to the net irrigation requirement to give a seasonal requirement.

Transmission losses for canals in excess of one mile in length were not considered in the example Proposed Determination of Water Rights in Bear River Drainage Area. The State Engineer did recommend that the court reserve the right to change the volume allowance to reflect changing application efficiencies and determination of conveyance losses.

New Mexico

In the issuance of permits to appropriate water for irrigation, the statutes condition that the State Engineer "shall permit the amount allowed to be diverted at a rate consistent with good agricultural practices and which will result in the most effective use of available water in order to prevent waste."

EXHIBIT VII-2

ESTIMATING FLOW RATES FOR PUMPS

MEMORANDUM

TO: Missoula Field Office Personnel

FROM: Robert G. Arrington

DATE: February 5, 1981

SUBJECT: Estimating Flow Rates Based on Horsepower and Vertical Lift

WHP (Water Horse Power) - power theoretically required to lift a given quantity of water each second to a specified height.

BHP (Brake Horse Power) = power delivered by an electric motor or by an engine to the shaft of a pump.

$$WHP = \frac{(GPM)(H)}{3960}$$

$$BHP = \frac{WHP}{E}$$

$$\therefore \text{therefore; } BHP = \frac{(GPM)(H)}{3960 (E)}$$

$$GPM = \frac{(BHP)(E) (3960)}{H}$$

let BHP vary

let E = .70

let H = (vertical lift of water + (friction loss) +
(discharge pressure) + (velocity head))

½ to 2 HP Electric Motor or Engine

assume for domestic use

assume discharge pressure at pump is 30 psi

assume H = vertical lift of water + 75Ft (friction, pressure,
and velocity head)

5 to 25 HP Electric Motor or Engine

assume for irrigation use

assume discharge pressure at pump is 60 psi

assume H = vertical lift of water + 150 ft (Friction, pressure,
and velocity head)

50 to 100 HP Electric Motor or Engine

assume for irrigation use

assume discharge pressure at pump is 80 psi

assume H = vertical lift of water + 200ft (friction, pressure,
and velocity head)

EXHIBIT VII-2 (cont.)

ESTIMATED FLOW RATED (GPM)

Vertical lift (FT)	Size of Electric Motor of Engine on Pump (HP)											
	1/2	3/4	1	1 1/2	2	5	10	15	25	50	75	100
0	18.5	28	37	55.5	74	92.5	185	277	462	693	1040	1386
25	14	21	28	42	55	80	160	240	400	616	924	1232
50	11	17	21	33	44	70	140	210	350	555	832	1110
75	9	14	19	28	37	62	124	186	310	504	756	1008
100	8	12	16	24	32	56	112	168	280	462	693	924
125	7	10	14	21	28	51	102	153	255	426	640	852
150	6	9	12	18.5	25	46	92	138	230	396	594	792
175	5.5	8	11	16.5	22	43	86	129	215	370	555	740
200	5	7.5	10	15	20	40	80	120	200	350	525	700

EXHIBIT VII-2 (cont.)

SUBMERSIBLE PUMP DISCHARGE

Lift* (ft)	Motor Power (Hp)						
	1/3	1/2	3/4	1	1.5	2	3
10	12.6	17.0	24.0	31.0	37.0	57.0	78.0
20	11.6	16.0	22.0	30.0	34.0	51.0	66.0
30	10.8	15.0	20.0	28.0	31.0	47.0	62.0
40	9.8	14.0	18.0	26.0	30.0	43.0	58.0
50	7.8	12.8	16.0	25.0	29.0	39.0	54.0
60	5.8	12.2	14.8	24.0	28.0	35.0	51.0
80	5.2	10.7	14.0	20.0	26.0	29.0	43.0
100	4.5	9.6	13.1	17.0	24.0	28.0	38.0
120	3.8	8.3	12.2	16.0	21.0	27.0	35.0
140	2.8	6.8	11.0	14.0	19.0	25.0	32.0
160	1.6	5.5	9.6	13.2	17.0	24.0	29.0
180	0.0	5.0	8.5	12.3	16.0	22.0	27.0
200		4.5	7.2	11.4	15.0	21.0	26.0
220		4.0	6.3	10.6	14.6	19.0	25.0
240		3.3	5.6	9.6	13.4	18.0	24.0
260		2.5	5.2	8.3	12.6	16.0	23.0
280		1.5	4.8	7.1	12.0	15.0	22.0
300		0.0	4.5	6.0	11.2	14.0	21.0

* Vertical distance from the pumping water level to the pressure switch. The pressure switch setting is assumed to be 40 psi.

EXHIBIT VII-3

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

PUMP QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Pump System (current system):
 - a. Make, Model, and Horsepower:
 - b. Type of pump (circle): 1) centrifugal 2) turbine 3) submersible 4) other (explain)
 - c. Type of power (circle): 1) electric 2) PTO 3) other (explain)
 - d. Approximate age of the pump:
 - e. RPMs of the pump:
 - f. Diameter of the pump impeller:
 - g. Pressure at pump (psi):
 - h. Intake and outlet pipe sizes:
 - i. Well casing size (if applicable):
 - j. Level of water in well (if applicable):
 - k. Elevation difference between the water source and the highest point of use:
 - l. Number of nozzles and sizes (if applicable):

m. Please send a copy of the pump curve (if available).

2. Flow rate (current system).

a. Has the output (flow rate) of your system ever been measured? If so, what was the maximum flow rate measured?

b. How was the measurement performed?

c. If never measured, what do you estimate the flow to be?

3. History and Condition:

a. When was the current pump system built?

b. When was water first used for the purpose claimed?

c. Is the water system in working order or operation?

d. If not in working order or in operation, when was it last used?

4. Please describe the original system (if different from the current system), and all enlargements or reductions of the pump system and the date each occurred.

5. Plans, maps or photos of the water system would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be helpful.

6. Additional remarks.

7. Person completing questionnaire.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ___ Sent to Claimant ___ Telephone Interview
 ___ Personal Interview ___ Other: _____

Reason: ___ DNRC Examination
 ___ Other: _____

Time and Location: _____
Reviewer: _____ Date: _____

Remarks:

EXHIBIT VII-4

ESTIMATING FLOW RATES FOR GRAVITY FLOW PIPELINES

MEMORANDUM

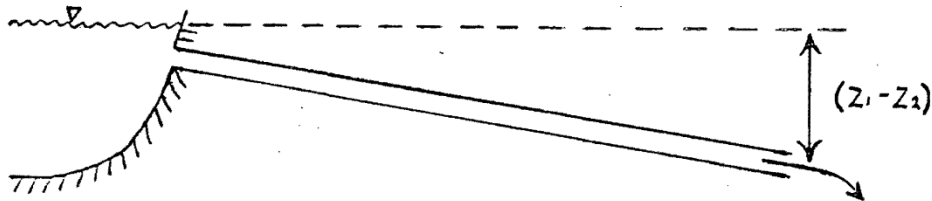
TO: Missoula Field Office Personnel

FROM: Robert G. Arrington

DATE: April 7, 1981

SUBJECT: Expected Flow Rates (GPM) For Gravity Flow Pipe Systems

Q.) What kind of flow rates can be expected for gravity flood systems using PVC pipe with varying elevation, pipe diameter, and pipe length?



$$\frac{V_1^2}{2g} + \frac{P_1}{\rho} + Z_1 = \frac{V_2^2}{2g} + \frac{P_2}{\rho} + Z_2 + h_{L_{1,2}}$$

$$(Z_1 - Z_2) = \frac{V_2^2}{2g} + h_{L_{1,2}}$$

$$\text{where } h_{L_{1,2}} = \left(\frac{1.816}{C_h}\right)^{1.852} \left(\frac{L}{D^{1.167}}\right) (V^{1.852}) + (K_{\text{ENTRANCE}}) \left(\frac{V^2}{2g}\right)$$

$$\text{let } C_h = 150 \quad K_{\text{ENTRANCE}} = 0.5 \quad g = 32.2 \text{ fps}$$

therefore

$$(Z_1 - Z_2) = \frac{V^2}{2g} + (.5) \left(\frac{V^2}{2g}\right) + \left(\frac{1.816}{150}\right)^{1.852} \left(\frac{L}{D^{1.167}}\right) (V^{1.852})$$

$$(Z_1 - Z_2) = (.0232919)(V^2) + (.0002816) \left(\frac{L}{D^{1.167}}\right) (V^{1.852})$$

Referring to the charts, it is noticed that for any particular combination of pipe diameter, pipe length, and elevation difference that two values are given. The top value is the expected flow rate in gallons per minute (gpm). The figure in parenthesis is the velocity of the water inside the pipe in feet per second (fps).

The American Society of Agricultural Engineers recommends in standard ASAE S376 that the design water velocity in a pipeline when operating at system capacity should not exceed five feet per second. The reason for the recommendation is to try to prevent excessive pressures which may exceed the bursting pressure for the pipe when sudden changes are made to the system; such as closing a valve or suddenly increasing the capacity or velocity in the line.

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE							
VERTICAL DROP (ft)	Inside Diameter: 1/2 inch						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=100ft	L=2000ft
1	0.8 (1.32)	0.5 (0.92)	0.4 (0.64)	0.3 (0.51)	0.2 (0.40)	0.16 (0.27)	0.10 (0.19)
5	1.9 (3.14)	1.3 (2.19)	0.9 (1.52)	0.7 (1.23)	0.5 (0.93)	0.4 (0.64)	0.3 (0.44)
10	2.8 (4.56)	1.9 (3.18)	1.3 (2.2)	1.0 (1.77)	0.8 (1.35)	0.5 (0.93)	0.4 (0.64)
15	3.4 (5.66)	2.4 (3.95)	1.6 (2.74)	1.3 (2.21)	1.0 (1.67)	0.7 (1.15)	0.5 (0.79)
20	4.0 (6.61)	2.8 (4.62)	1.9 (3.20)	1.6 (2.58)	1.2 (1.99)	0.8 (1.35)	0.6 (0.93)
25		3.2 (5.21)	2.2 (3.61)	1.8 (2.90)	1.3 (2.21)	0.9 (1.52)	0.65 (1.05)
30		3.5 (5.74)	2.4 (3.98)	1.9 (3.21)	1.5 (2.43)	1.0 (1.68)	0.7 (1.16)
40		4.1 (6.71)	2.8 (4.65)	2.3 (3.74)	1.7 (2.85)	1.2 (1.96)	0.8 (1.35)
50			3.20 (5.24)	2.5 (4.22)	1.9 (3.21)	1.3 (2.22)	0.9 (1.52)
65			3.6 (6.03)	2.9 (4.86)	2.2 (3.69)	1.5 (2.55)	1.0 (1.76)
80			4.1 (6.75)	3.3 (5.44)	2.5 (4.15)	1.7 (2.85)	1.2 (1.97)
100				3.7 (6.13)	2.8 (4.68)	1.9 (3.2)	1.3 (2.22)

Exhibit VII-4 (cont.)

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE

Vertical Drop (ft)	Inside Diameter: 1 inch						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	4.9 (2.0)	3.4 (1.4)	2.4 (1.0)	1.9 (0.8)	1.4 (0.60)	1.0 (0.41)	0.7 (0.29)
5	11.5 (4.7)	8.1 (3.33)	5.7 (2.34)	4.6 (1.88)	3.5 (1.43)	2.4 (0.99)	1.6 (0.68)
10	16.6 (6.8)	11.8 (4.85)	8.3 (3.38)	6.6 (2.73)	5.1 (2.08)	3.5 (1.43)	2.4 (1.0)
15		14.7 (6.0)	10.2 (4.2)	8.3 (3.4)	6.3 (2.58)	4.3 (1.79)	3.0 (1.23)
20			12.0 (4.9)	9.7 (3.96)	7.4 (3.02)	5.1 (2.08)	3.5 (1.43)
25			13.5 (5.53)	10.9 (4.46)	8.3 (3.41)	5.7 (2.35)	3.9 (1.62)
30			14.9 (6.1)	12.0 (4.93)	9.2 (3.76)	6.3 (2.59)	4.3 (1.78)
40				14.1 (5.76)	10.7 (4.39)	7.4 (3.02)	5.1 (2.1)
50				15.8 (6.49)	12.1 (4.95)	8.3 (3.41)	5.7 (2.35)
65					13.9 (5.7)	9.6 (3.93)	6.6 (2.71)
80					15.6 (6.37)	10.7 (4.4)	7.4 (3.03)
100						12.2 (5.0)	8.3 (3.42)

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE

Vertical Drop (ft)	Inside Diameter: 1½ inches						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	13.7 (2.5)	9.9 (1.8)	7.1 (1.3)	5.6 (1.02)	4.2 (0.77)	2.9 (0.53)	2.0 (0.37)
5	32.1 (5.84)	23.4 (4.26)	16.5 (3.0)	13.2 (2.4)	10.1 (1.84)	7.0 (1.28)	4.8 (0.88)
10		33.8 (6.14)	23.8 (4.33)	19.2 (3.5)	14.7 (2.67)	10.1 (1.85)	7.0 (1.27)
15			29.5 (5.36)	23.9 (4.35)	18.2 (3.32)	12.6 (2.3)	8.7 (1.58)
20			34.5 (6.28)	27.9 (5.07)	21.3 (3.88)	14.7 (2.68)	10.1 (1.85)
25				31.5 (5.73)	24.1 (4.38)	16.6 (3.03)	11.5 (2.09)
30				34.8 (6.32)	26.6 (4.83)	18.3 (3.34)	12.7 (2.31)
40					31.0 (5.64)	21.4 (3.9)	14.8 (2.69)
50					35.0 (6.36)	24.2 (4.4)	16.6 (3.03)
65						27.9 (5.07)	19.2 (3.49)
80						31.2 (5.67)	21.5 (3.91)
100						35.2 (6.4)	24.3 (4.41)

Exhibit VII-4 (cont.)

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE							
VERTICAL DROP (ft)	Inside Diameter: 2inches						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	29.3 (3.0)	20.56 (2.1)	14.7 (1.5)	11.9 (1.22)	9.3 (0.95)	6.4 (0.66)	4.5 (0.46)
5	66.5 (6.8)	48.9 (5.0)	34.8 (3.56)	28.2 (2.88)	21.5 (2.2)	14.9 (1.53)	10.2 (1.05)
10		70.5 (7.2)	50.2 (5.13)	40.9 (4.18)	31.3 (3.2)	21.6 (2.21)	14.9 (1.53)
15			62.3 (6.37)	50.7 (5.18)	38.9 (3.98)	26.9 (2.75)	18.6 (1.9)
20				59.2 (6.05)	45.4 (4.64)	31.4 (3.21)	21.7 (2.22)
25					51.2 (5.23)	35.4 (3.62)	24.4 (2.5)
30					56.5 (5.77)	39.1 (4.0)	27.0 (2.76)
40					66.0 (6.74)	45.7 (4.67)	31.5 (3.22)
50						51.5 (5.26)	35.5 (3.63)
65						59.3 (6.06)	40.9 (4.18)
80						66.3 (6.78)	45.8 (4.68)
100							51.7 (5.28)

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE							
Vertical Drop (ft)	Inside Diameter: 2inches						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	49.2 (3.21)	36.5 (2.38)	26.0 (1.70)	21.1 (1.38)	16.2 (1.06)	11.2 (0.73)	7.8 (0.51)
5	115.3 (7.52)	85.9 (5.60)	61.6 (4.02)	50.3 (3.28)	38.5 (2.51)	26.8 (1.75)	18.5 (1.21)
10			89.4 (5.83)	73.0 (4.76)	56.1 (3.66)	39.1 (2.55)	27.0 (1.76)
15				90.8 (5.92)	69.8 (4.55)	48.4 (3.16)	33.4 (2.18)
20					81.6 (5.32)	56.6 (3.69)	39.1 (2.55)
25					92.0 (6.00)	63.8 (4.16)	44.0 (2.87)
30						70.4 (4.59)	48.6 (3.17)
40						82.2 (5.36)	56.9 (3.71)
50						92.6 (6.04)	64.1 (4.18)
65							73.7 (4.81)
80							82.5 (5.38)
100							93.1 (6.07)

Exhibit VII-4 (cont.)

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE

Vertical Drop (ft)	Inside Diameter: 3 inches						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	77.1 (3.50)	57.7 (2.62)	41.6 (1.89)	33.9 (1.54)	26.0 (1.18)	18.0 (0.82)	12.5 (0.57)
5	179.7 (8.16)	135.7 (6.16)	98.2 (4.46)	80.4 (3.65)	61.9 (2.81)	42.9 (1.95)	29.7 (1.35)
10			142.5 (6.47)	116.7 (5.30)	90.3 (4.10)	62.7 (2.85)	43.4 (1.97)
15				145.1 (6.59)	111.9 (5.08)	78.0 (3.54)	53.7 (2.44)
20					130.8 (5.94)	91.0 (4.13)	63.0 (2.86)
25						102.4 (4.65)	70.9 (3.22)
30						113.2 (5.14)	78.2 (3.55)
40						132.1 (6.00)	91.4 (4.15)
50							103.1 (4.68)
65							118.7 (5.39)
80							132.8 (6.03)
100							

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE

Vertical Drop (ft)	Inside Diameter: 4 inches						
	L=50ft	L=100ft	L=200ft	L=300ft	L=500ft	L=1000ft	L=2000ft
1	154.7 (3.95)	118.6 (3.03)	86.9 (2.22)	71.2 (1.82)	55.2 (1.41)	38.3 (0.98)	26.6 (0.68)
5		278.0 (7.10)	205.2 (5.24)	168.8 (4.31)	130.8 (3.34)	91.25 (2.33)	63.0 (1.61)
10				245.1 (6.26)	189.9 (4.85)	132.7 (3.39)	92.0 (2.35)
15					236.1 (6.03)	165.2 (4.22)	114.3 (2.92)
20						193.0 (4.93)	133.9 (3.42)
25						217.3 (5.55)	150.7 (3.85)
30							166.74 (4.25)
40							194.2 (4.96)
50							219.3 (5.60)
65							252.6 (6.45)
80							
100							

GRAVITY FLOW PIPELINE QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Diversion structure:
 - a. Method or type (spring box, culvert, dam, etc.):
 - b. Dimension (length, diameter (width), depth):
 - c. Materials (wood, metal, concrete, etc.):
2. Conveyance facility:
 - a. Material:
 - i. Type of pipe (copper, plastic, steel):
 - ii. Condition of pipe:
 - b. Dimensions and length (please note the diameter and length of each different type of pipe):
 - c. Slope or elevation change from point of diversion to place of use (water levels):

3. Flow Rate:
 - a. Has the output (flow rate) of your system ever been measured?

If so, what was the maximum flow rate measured?
 - b. How was the measurement performed?
 - c. If never measured, what do you estimate the flow to be?
4. History and Condition:
 - a. When was this gravity flow pipeline system built?
 - b. When was it first used for the purpose claimed?
 - c. Is the water system in working order or operation?
 - d. If no to part 4.c., when was it last used?
5. Please describe all enlargements or reductions of the original water system and the date each occurred:
6. Plans, maps or photos of the water system would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.
7. Comments:

8. Person completing questionnaire:

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ___ Sent to Claimant ___ Telephone Interview
 ___ Personal Interview ___ Other: _____

Reason: ___ DNRC Examination
 ___ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

RECORDING DOCUMENTATION IN DECREE INDEX

SAGE CREEK - TRIB. TO RED ROCK RIVER (CONTINUED)									
TO WHOM DECREED	SEC. TWP. RGR.	LAND DESCRIPTION OF INTENDED PLACE OF USE	DITCH OR STREAM	DATE OF PRIORITY	MINER'S INCHES	PRESENT OWNER	OFFICE INDEX NUMBER		
Nathan J. Tallant (Continued)	129 { 23 24	11S 9W NW $\frac{1}{4}$, NE $\frac{1}{4}$, SW $\frac{1}{4}$ 11S 9W NE $\frac{1}{4}$, NW $\frac{1}{4}$	Bear Cr. Non-trib-utary Springs	8-24-1910 8-24-1910	20 80 All or 25 or all &c decree		4174-10	6195516 IR 20" Tallant, Jay 6195515 IR 10" Tallant, Jay	
John C. Patterson	150 { 1	13S 9W NE $\frac{1}{4}$		3-19-1911	75	GARR	4174-11	Void decree case 706 6194918 IR 75" Huntsman, Evan 6194917 IR 75" Huntsman, Evan	
Luther Anderson	130 { 12 13	11S 8W NE $\frac{1}{4}$, NW $\frac{1}{4}$ 11S 8W NW $\frac{1}{4}$	Bull Cr. East Sage Creek	5-1911 5-1916	60 200	GARR	4174-12	61112623 IR 200" Knox, Carl	
Andrew Smilka	151 { 5 6 150-1	13S 8W NE $\frac{1}{4}$, NW $\frac{1}{4}$ Lot 1-2-3-4-5, SE $\frac{1}{4}$ 13S 9W SE $\frac{1}{4}$ - GARR		4-16-1912 4-16-1913	50 50		4174-13	6194932 IR 50" Huntsman, Evan 6194933 IR 50" Huntsman, Evan	

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EXHIBIT VII-7

DECREE EXCEEDED CONTACT LETTER

(Use State of Montana Letterhead)

[CLAIMANT]
[ADDRESS]
[CITY, ST ZIP CODE + 4]

[DATE]

Re: Claim No. 000000-00

Dear [CLAIMANT]:

The Department of Natural Resources and Conservation is examining the claims on [SOURCE]. The parties listed on the attached decree index claim to be successors in interest to the water right originally decreed to [ORIGINAL APPROPRIATOR], [CASE NO., COUNTY]. This water right is for [##] miner's inches from [SOURCE] with a priority date of MM/DD/YYYY.

The combined flow rate for all water rights now claiming the [ORIGINAL APPROPRIATOR] right totals [###] miner's inches.

The claimants involved may now resolve the over-claimed [ORIGINAL APPROPRIATOR] right by reducing the total combined flow rate to [##] miner's inches. Otherwise, the Department is required to report the problem to the Montana Water Court for their review at a later date.

Please call the [LOCATION] at [PHONE] or visit the office at [LOCATION'S ADDRESS] if you have questions. Thank you for your attention to this matter.

Sincerely,

[NAME]
Water Right Specialist
[LOCATION]

Enclosure

JUDGE: Henry L. Myers
REF: Bk. 2, Pg. 277 & 287

SWEATHOUSE CREEK: TRIBS. CASH CREEK
July 13, 1910

CASE NO. 1011

Victor Townsite Co., et al, Plaintiff

-vs-

John P. Cleary, et al, Def.

CLAIM # FLOW RATE

CLAIMANTS

MINERS
INCHES

DATE OF
PRIORITY

DITCH OR
STREAM

LAND DESCRIPTION OF
INTENDED PLACE OF USE

SEC. 17P. RGE. 21W SW 1/4, S 1/4 NW 1/4

TO WHOM DECREED
Mary Blake

75

Sweathouse Cr. 8-1-67

50

4-1-70

20

4-1-70

80

4-1-81

M. K. & K. H. Kapitzke IR W 000 992 160"
Lee & Paula Yelina IR W 006 542 40"
Dan & Deane Ervin DM W 016 593 1"
Pete Langen IR W 212 913 20"

Total 221"

EXHIBIT VII-8

HISTORY OF VOLUME GUIDELINES

The calculation of volume guidelines was based on the following definitions.

- Total Consumptive Use - is the total amount of water, in inches, (assumes no rainfall) that a crop of alfalfa will use during an average growing season. These figures have been estimated by the Soil Conservation Service using the modified Blaney-Criddle Formula.
- Average Annual Rainfall - an estimation of annual rainfall, in inches, for each climatic area. Estimates were made from an average annual precipitation map for the State of Montana by the Soil conservation Service using a 1953-1967 base weather period.
- Effective Rainfall - is an estimate, in inches, of the portion of total rainfall that can effectively be used by the crop during the growing season.
- 80% Chance of Occurrence - is a "reducing" factor used to estimate effective rainfall on a probability basis.
- 80% Chance of Effective Rainfall - is the amount of effective rainfall that can be expected to occur 80% of the time. It is obtained by multiplying effective rainfall by the 80% chance of occurrence "reducing" factor.
- Net Irrigation Requirement - is the depth of irrigation water, in inches, that is required consumptively for crop production.

It should be noted that many factors operate singly or in combination to influence the amounts of irrigation water consumed by plants. The empirical formulas (modified Blaney-Criddle and Jensen-Haise) estimate consumptive use primarily based on climatic factors. For particular situations, these seasonal consumptive use figures may be an overestimation due to the unavailability of irrigation water supply, water quality, soil type, and soil fertility.

Total consumptive use figures have been estimated by the Soil Conservation Service using the modified Blaney-Criddle formula. Research conducted through the Montana Cooperative Extension Service and Washington State University Agricultural Experiment Station using the FAO (Food and Agriculture Organization) Blaney-Criddle method indicates that the modified Blaney-Criddle formula underestimates total consumptive use by approximately 20%.

In an article published in the 1984 ASAE transactions, researchers at the University of Wyoming found that the SCS Blaney-Criddle requires an upward adjustment of 10% per 1000m altitude increase above sea level. Using this report for Montana, the SCS consumptive use figures were increased by 10% for climatic areas I and II, 15% for climatic area III, and 20% for climatic areas IV and V.

Seasonal consumptive use figures per climatic area have also been calculated using the Jensen-Haise method by J.W. Bauder, Montana Cooperative Extension Service in a guide entitled Scheduling Irrigation In Montana. The results of this various research are shown in Table A.

Exhibit VII-8 (cont.)

Total consumptive use standards to be used per irrigated acre are shown in Table A. The Water Court Standards for total consumptive use represents a slight compromise which tends to agree with

the research done to date. The most direct correlation can be found between the Water Court revised standard and the application of the University of Wyoming study adjustments to SCS modified Blaney-Criddle. One will note that the only real variation lies in total consumptive use figures in climatic area five. Application of the University of Wyoming study results in a derivation of 17.2 inches/acre/year while the revised Water Court Standard is 20.0 inches/acre/year. This upward adjustment results in a higher water requirement for the area. Adjustment was made primarily due to our feeling that SCS climatic area five reflects an undefined and possibly unrealistic deviation from the other five zones. Therefore, instead of leaving the climatic area at 17.2, an interval decrease of 6.8", below zone IV we suggest raising it to 20", in interval decrease of 4". Such an adjustment for use in a capping standard is favorable to the users.

Referring to Table B, the three different volume standards have been calculated based on type of irrigation system. The determination of net irrigation requirement follows the procedure set forth in Irrigation Water Requirements, Technical Release No. 21 by the Soil Conservation Service.

Table A: Total Consumptive Use per Acre Per Growing Season

	Climatic Area				
	I	II	III	IV	V
Modified Blaney-Criddle By SCS (inches)	28.99	25.98	23.03	19.96	14.33
U. of Wyoming report (inches)	31.9	28.6	26.5	24.0	17.2
FAO Blaney-Criddle (inches)	34.8	31.2	26.5	24.0	17.2
Jensen-Haise Report By Bauder (inches)	34.4	32.2	30.0	28.4	26.4
Water Court Standard (inches)	32.0	29.0	26.5	24.0	20.0

EXHIBIT VII-8 (cont.)**Table B: Determining Volumes by Climatic Area**

	I	II	III	IV	V
Total Consumptive Use (inches)	32.00	29.00	26.50	24.00	20.00
Average Annual Rainfall (inches)	12.00	13.00	14.00	15.00	16.00
Effective Rainfall (inches)	6.85	6.63	5.53	5.14	3.74
80% Chance of Occurrence	.69	.70	.71	.72	.73
80% Chance of Effective Rainfall (inches)	4.73	4.64	3.93	3.70	.73
Net Irrigation Requirement (inches)	27.27	24.36	22.57	20.30	17.27
Water Spreading Systems, Sub-Irrigation, and Natural Overflow Volume (AF/A)	2.3	2.0	1.9	1.7	1.4
Sprinkler and Pumped Diversion Systems (50% Overall Efficiency) volume (AF/A)	4.5	4.0	3.8	3.4	2.9
Flood Systems (20% Overall Efficiency) volume (AF/A)	11.4	10.2	9.4	8.5	7.2

EXHIBIT VII-9

DNRC EXAMINATION WORKSHEET POU ADDENDUM

Page ____ of ____

Claim # _____

Data Source #1 _____ Date _____

PARCEL	ACRES	LOT	BLK	QTR SEC	SEC	TWP	RGE	CNTY
001	_____	_____	_____	_____	_____	_____	_____	_____
002	_____	_____	_____	_____	_____	_____	_____	_____
003	_____	_____	_____	_____	_____	_____	_____	_____
004	_____	_____	_____	_____	_____	_____	_____	_____
005	_____	_____	_____	_____	_____	_____	_____	_____
006	_____	_____	_____	_____	_____	_____	_____	_____
007	_____	_____	_____	_____	_____	_____	_____	_____
008	_____	_____	_____	_____	_____	_____	_____	_____
009	_____	_____	_____	_____	_____	_____	_____	_____
010	_____	_____	_____	_____	_____	_____	_____	_____
011	_____	_____	_____	_____	_____	_____	_____	_____
012	_____	_____	_____	_____	_____	_____	_____	_____
013	_____	_____	_____	_____	_____	_____	_____	_____
014	_____	_____	_____	_____	_____	_____	_____	_____
015	_____	_____	_____	_____	_____	_____	_____	_____

_____ Total Acres This Page Contact Range = _____ to _____

Data Source #2 _____ Date _____

PARCEL	ACRES	LOT	BLK	QTR SEC	SEC	TWP	RGE	CNTY
001	_____	_____	_____	_____	_____	_____	_____	_____
002	_____	_____	_____	_____	_____	_____	_____	_____
003	_____	_____	_____	_____	_____	_____	_____	_____
004	_____	_____	_____	_____	_____	_____	_____	_____
005	_____	_____	_____	_____	_____	_____	_____	_____
006	_____	_____	_____	_____	_____	_____	_____	_____
007	_____	_____	_____	_____	_____	_____	_____	_____
008	_____	_____	_____	_____	_____	_____	_____	_____
009	_____	_____	_____	_____	_____	_____	_____	_____
010	_____	_____	_____	_____	_____	_____	_____	_____
011	_____	_____	_____	_____	_____	_____	_____	_____
012	_____	_____	_____	_____	_____	_____	_____	_____
013	_____	_____	_____	_____	_____	_____	_____	_____
014	_____	_____	_____	_____	_____	_____	_____	_____
015	_____	_____	_____	_____	_____	_____	_____	_____

_____ Total Acres This Page Contact Range = _____ to _____

Examined By: _____ Date: _____

EXHIBIT VII-10

CLAIMANT CONTACT POINTS

The claimant contact formula is a non-linear equation for calculating a reasonable margin of error for examined acreage. This margin for error has been formulated to account for discrepancies in the distortion of aerial photos, GIS polygon imprecisions, and claimant estimation errors.

The contact points are only guidelines. Claims that involve very large maximum acreage figures (>50,000 acres) may have a significant margin of error. In these instances discretion should be applied; please consult your supervisor.

$$Cp = X - 0.8(x0.6)$$

$$Cp = X + 0.8(x0.6)$$

where X = new total claimed acres

Cp = new claimant contact point

EXAMPLE: Maximum acres = 10,000 / High = 10,201 / Low = 9799

Maximum acres = 100 / High = 113 / Low = 87

EXHIBIT VII-11

WRS ACREAGE CONTACT LETTER

(Use State of Montana Letterhead)

[DATE]

[CLAIMANT]

[ADDRESS]

[CITY, ST ZIP CODE + 4]

RE: Claim No. 000000-00

Dear [CLAIMANT]:

The Montana Water Court has begun the preliminary work necessary to issue a decree on all pre-July 1, 1973 water rights in the [NAME] basin. At the Court's request, the Department of Natural Resources and Conservation (DNRC) is examining all the water right claims in the basin.

Your water right claims in the [NAME] basin are currently being examined. The 1954 [COUNTY] Water Resources Survey is one resource used in the examination to make a comparison between claimed acres and irrigation as it was prior to July 1, 1973. A few questions cannot be answered from the information submitted with the claim. The 1954 [COUNTY] Water Resources Survey reported 78 acres of irrigation on the place of use. Your claim shows 150 acres of irrigation.

The DNRC is required to report the discrepancy between the survey data and the acres claimed to the Water Court. The Court is required by Montana statute (§85-2-248) to resolve all issues. If you have further information that supports the 150 acres, or optionally, feel your claimed acreage or place of use should be amended to reflect pre-1973 irrigation practices, please contact me.

Thank you for your time and attention to this matter.

Sincerely,

[NAME]

Water Rights Technician

[LOCATION]

Enclosure

EXHIBIT VII-12

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

DITCH QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Channel type: Which selection most accurately describes your ditch?
 - a. Circular
 - b. Rectangular
 - c. Triangular
 - d. Trapezoidal
 - e. Other: _____

2. Bottom type: Which selection most accurately describes the bottom of your ditch?
 - a. Lined with concrete, tile, brick
 - b. Clean earth/dirt
 - c. Natural stream channel smooth bottom
 - d. Natural stream channel weedy bottom
 - e. Natural stream channel rocky bottom
 - f. Other: _____

3. Gradient : (fall in feet per distance in feet)

4. What is the average depth of your ditch in feet?

5. Dimensions of ditch channel (estimate distance in feet)
 - a. Top width of ditch?

 - b. Bottom width of ditch?

 - c. Diameter (if applicable)?

6. Additional remarks.

7. Person completing questionnaire.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
 ☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
 ☐ Other: _____

Time and Location: _____
Reviewer: _____ Date: _____

Remarks:

EXHIBIT VII-13

LIST OF IRRIGATION DISTRICTS

Alphabetical By County

NOTE: The following list was provided by the DNRC Engineering Bureau in the fall of 1987. Each district listed was incorporated under the requirements of §85-7-101 through 110, MCA. The list may not contain all districts having that type of incorporation.

BE	East Bench Irrigation District
BE	West Bench Irrigation District
BH	Big Horn Irrigation District
BH	Lower Little Horn & Lodge Grass Irrigation District
BH	Upper Little Horn Irrigation District
BL	Alfalfa Valley Irrigation District
BL	Fort Belknap Irrigation District
BL	Harley Irrigation District
BL	North Chinook Irrigation District
BL	Paradise Valley Irrigation District
BL	Zurich Irrigation District
BR	Toston Irrigation District
CS	Fort Shaw Irrigation District
LC	Helena Valley Irrigation District
LN	Glen Lake Irrigation District
MS	Big Flat Irrigation District
MS	Clinton Irrigation District
MS	Frenchtown Irrigation District
MS	Missoula Irrigation District
PH	Dodson Irrigation District
PH	Glasgow Irrigation District
PH	Malta Irrigation District
PI	Buffalo Rapids Irrigation District
RA	Bitterroot Irrigation District
RA	Blodgett Creek Irrigation District
RA	Canyon Creek Irrigation District
RA	Charles Heights Irrigation District
RA	Daly Ditches Irrigation District
RA	Lomo Irrigation District
RA	Mill Creek Irrigation District
RA	Sunset Irrigation District
RA	Ward Irrigation District
RI	Intake Irrigation District
RI	Lower Yellowstone Project Irrigation District
RI	Savage Irrigation District
RS	Cartersville Irrigation District
RS	Hammond Irrigation District
TE	Bynum Irrigation District
TE	Greenfields Irrigation District
TR	Yellowstone Irrigation District
YE	Danford Irrigation District
YE	Huntley Project Irrigation District
YE	Lockwood Irrigation District
YE	Victory Irrigation District

EXHIBIT VII-13 (cont.)

LIST OF IRRIGATION DISTRICTS

Alphabetical By District

NOTE: The following list was provided by the DNRC Engineering Bureau in the fall of 1987. Each district listed on it was incorporated under the requirements of §85-7-101 through 110, MCA. The list may not contain all districts having that type of incorporation.

BL	Alfalfa Valley Irrigation District
MS	Big Flat Irrigation District
BH	Big Horn Irrigation District
RA	Bitterroot Irrigation District
RA	Blodgett Creek Irrigation District
PI	Buffalo Rapids Irrigation District
TE	Bynum Irrigation District
RA	Canyon Creek Irrigation District
RS	Cartersville Irrigation District
RA	Charles Heights Irrigation District
MS	Clinton Irrigation District
RA	Daly Ditches Irrigation District
YE	Danford Irrigation District
PH	Dodson Irrigation District
BE	East Bench Irrigation District
BL	Fort Belknap Irrigation District
CS	Fort Shaw Irrigation District
MS	Frenchtown Irrigation District
PH	Glasgow Irrigation District
LN	Glen Lake Irrigation District
TE	Greenfields Irrigation District
RS	Hammond Irrigation District
BL	Harley Irrigation District
LC	Helena Valley Irrigation District
YE	Huntley Project Irrigation District
RI	Intake Irrigation District
YE	Lockwood Irrigation District
RA	Lomo Irrigation District
BH	Lower Little Horn & Lodge Grass Irrigation District
RI	Lower Yellowstone Project Irrigation District
PH	Malta Irrigation District
RA	Mill Creek Irrigation District
MS	Missoula Irrigation District
BL	North Chinook Irrigation District
BL	Paradise Valley Irrigation District
RI	Savage Irrigation District
RA	Sunset Irrigation District
BR	Toston Irrigation District
BH	Upper Little Horn Irrigation District
YE	Victory Irrigation District
RA	Ward Irrigation District
BE	West Bench Irrigation District
TR	Yellowstone Irrigation District
BL	Zurich Irrigation District

EXHIBIT VII-14

DECREE EXCEEDED ISSUES

The following handout was provided to the DNRC by the Water Court in February 2007.

Prior to 1973 a water right could be obtained in one of three ways: by a prior court decree (decreed right); by filing a Notice of Appropriation (filed right); or by simply putting water to a beneficial use (use right).

On the original Statement of Claim you were asked to identify the historical basis for your water right and attach the appropriate documentation. When a water right was based on a right previously decreed, you were asked to attach a copy of the previous decree and identify the individual to whom the right was originally decreed.

During examination of the claim, the Department of Natural Resources & Conservation (DNRC) created an index for the previously decreed rights and kept track of which claims in the current adjudication were based on each previously decreed water right. They also kept track of the flow rates claimed so that they were able to determine if a previously decreed right was over-claimed.

When two or more claims were filed on the same formerly decreed right, and the combined claimed flow rates exceed the amount formerly decreed, a decree exceeded (DE) situation occurs and a decree exceeded issue remark is added to the abstracts of each of the claims. The following remark appears on the abstracts of the claims in this case:

THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE FILED ON THE SAME FORMERLY DECREED WATER RIGHT. THE SUM OF THE CLAIMED FLOW RATES EXCEEDS THE (number) MINER'S INCHES DECREED IN CASE NO. ____, (named) COUNTY. (Water rights listed by numbers).

Decree Exceeded claims are usually consolidated into a case by the Water Court. The Court frequently supplies a table of the claims and identifies the decreed right involved when issuing its Orders to resolve this issue. Below is an EXAMPLE of such an issue:

These two claims are both based on the 40 miner's inch right previously decreed to John Tingley in Choteau County Case No. 652 out of Big Sandy Creek with a priority date of May 24, 1888. Together these claims have exceeded the previously decreed right as follows:

<u>Claim No.</u>	<u>Claimant</u>	<u>Claimed Flow Rate</u>
40H-W-	(names)	1.00 CFS (40 MI)
40H-W-		1.00 CFS (40 MI)
	Total	2.00 CFS (80 MI)

A decree exceeded issue can be a legal chain of title problem or it can be a mistake in paperwork. The objective is for all claims together to equal the flow rate previously decreed.

THINGS TO THINK ABOUT/REVIEW WHEN ATTEMPTING TO RESOLVE A DE

1. Do the different claimants have a common predecessor? The search for the correct distribution of the previously decreed right should start with the transfers of property and water from the common predecessor. A common predecessor is someone who previously owned all of the water now being claimed by the claimants in the case.
2. What does the previous decree say? Frequently there is information in the decree that will help identify when, where and how the water was historically used.

3. Did the decree specifically identify the place of use for the decreed water? If so, then the current owners of the historical place of use can be determined, and perhaps an equitable apportionment of the water can be made on this basis.
4. Was the same person decreed more than one water right in the previous decree? One or more claimants in the current adjudication may have filed on the wrong previously decreed right.
5. Are there other water rights in the previous decree with the same priority date? A claimant may have filed on a right not belonging to his predecessor.

CHAIN OF TITLE SEARCHES

If the claimants in a DE cannot easily identify the problem, or each believes that they are entitled to exactly what they claimed, a chain of title search is necessary. A chain of title search involves reviewing the old deeds and transfers of real property and water from the individual to whom the right was previously decreed down to the present owners. It must be determined who now has legal title to what portions of the previously decreed right.

Deeds are not always specific. The only reference to water may be as an appurtenance, something that transfers with the land. Then the parties must try to figure out what water and how much water was historically appurtenant to the land being transferred. In Montana water can be transferred separate from the land and moved from the original place of use. Where a claimant owns none of the historically decreed place of use, all transfers by each of the previous owners need to be reviewed to determine if any of the water was ever transferred to someone separate from the land. This type of transfer will not appear in an abstract of title.

ASSISTANCE

Your DNRC field office can provide assistance in understanding a DE. The DNRC staff may have copies of some of the documents needed to resolve the DE. You may also seek assistance at the County Clerk and Recorder's office for your county to find locations of documents such as deeds and Notices of Appropriation.

RESULTS AND SOLUTIONS

A claimant may find that they own a different previously decreed right, or that they own less or more water than claimed. All that may be required is that they provide an Affidavit and some supporting documentation of the correct basis for their claim.

A Claimant may find that they do not own any part of a previously decreed right. Does this claimant still have a valid water right claim, and if so, what is the basis for the claim? All that may be required is an Affidavit with supporting documentation as to the correct basis for the claim, such as a different previously decreed right, or a copy of a Filed Notice of Appropriation.

A claimant may find that the previously decreed right was over sold. More water was sold than the previous owner had to sell. The claimant may need to withdraw a portion of his claim, or withdraw his entire claim to the previously decreed right.

All or several of the claimants in a case may discover that they each need to adjust their claim. In that case the parties can prepare one document, to be signed by all of them, which sets out the changes that need to be made to each claim in the case. This is called a Stipulation or settlement agreement. The court will review the Stipulation or settlement agreement and determine whether it can be accepted. If the Stipulation or settlement agreement is accepted then a Masters Report will be issued and your water rights will be modified according to the terms of the agreement.

EXHIBIT VII-15

SUPPLEMENTAL WORKSHEET

August 19, 2009
Related Right # 38902

Page 1 of 1
Supplemental Worksheet

DNRC Supplemental Right Worksheet

Reference water right # 40404

Supplemental Water Right #	Water Right Status	Historical Right Type	Flow Rate (GPM)	Flow Rate (CFS)	Version Max Acres	Standards Applied?	PL Issue Exists?	S140 Exists?
41A-40404	ACTV	DECR	170.54	0.38	160.00	Y	Y	N
41A-40405	ACTV	DECR	224.40	0.50	160.00	Y	Y	N
41A-40406	ACTV	DECR	875.16	1.95	160.00	Y	Y	N
41A-40407	ACTV	FILE	897.60	2.00	200.00	Y	Y	N
Total Flow Rate:			2,167.70					
Max Combined Acres:			325.00					
GPM Per Acre:			6.68					

* - Standards has reduced this flow rate.

EXHIBIT VII-16

MANNING EQUATION: OPEN-CHANNEL MEASUREMENTS USING THE SLOPE-AREA METHOD

At times it is necessary to estimate the capacity of a ditch or natural channel when no water is flowing. One method of making such estimates involves the use of Manning's equation as shown below:

$$V = (1.49/n) R^{2/3} S^{1/2} \quad \text{Manning Equation} \quad (1)$$

$$Q = V \cdot A \quad \text{Discharge Equation} \quad (2)$$

$$Q = ((1.49/n) R^{2/3} S^{1/2}) \cdot A \quad \text{To solve for Q using Manning} \quad (3)$$

WHERE:

- V = Velocity (ft/sec)
- Q = Channel discharge (ft³/sec.)
- A = Area of the channel cross section (ft²)
- R = Hydraulic radius (cross sectional area/wetted perimeter) of the channel (ft)
- S = Slope of the energy gradient (ft/ft)
- n = A roughness factor depending on the character of the channel lining

Technically, the Manning equation is only valid for uniform flow — that is flow in which the water-surface profile and energy gradient are parallel to the streambed, and the channel shape and cross sectional area remain constant throughout the reach. Even though most channels that will be encountered will not have uniform flow, the formula can often be used without a great deal of error.

To use Manning's equation, several measurements have to be made. A straight course of the channel should be chosen, at least 100 feet and preferably 1,000 feet in length. The course should be free of rapids, abrupt drops, sudden contractions, or sudden expansions. For our work 300-500 feet of channel may be all that is available. Channels with long gradual bends may be used for the course if it is taken into account in the n-value (see [Table 2](#)).

A wheel or tape may be used to measure the length of the course (reach) to be used. If intermediate cross sections are to be measured, a stake or marker should be placed at those locations and the distance from the starting point should be noted. Even if intermediate cross sections are not measured, it is good to determine elevations at more than the end sections to check the uniformity of the channel slope.

To determine the cross sectional area and hydraulic radius, the dimensions of two or more cross sections have to be determined. At the very least, the cross sections at each end of the reach should be measured. Other mid-reach cross sections should also be measured if there is significant variation in the channel section.

To measure cross sections, stretch a tape across the channel, from high water mark to high water mark, at the desired location. A wooden ruler, tape graduated in feet, tenths and hundredths, or current meter wading rod can then be set at various points across the channel to obtain the depth (see [Figure 1](#)). At least five water depth measurements should be made across the channel. Both the depth and distance across the channel should be recorded so the cross section can be drawn. For most ditches over 20 feet wide or ditches with irregular beds, more than five measurements should be made.

The information gathered at each cross section should be plotted on graph paper. If possible, use the same vertical and horizontal scales. This allows the use of a planimeter or graphics pad

EXHIBIT VII-16 (cont.)

for area measurements and an engineering scale for wetted perimeter measurements. To find the cross sectional area, the user may count grid squares or, as mentioned above, use a planimeter or graphics pad. The cross sectional data could also be entered in Auto Cad or Arc View and functions of those programs used to determine the cross sectional area and wetted perimeter.

The wetted perimeter is the length, measured across the stream that is touched by the water. This may be calculated by measuring with a scale or by calculating the distance between coordinates. An example of a cross section measurement is shown in [Figure 1](#).

A level is used to determine the water surface elevation at the end sections and at any intermediate points. Any arbitrary starting elevation may be used as only elevation differences are used in the slope calculations. In most instances, the slope can be assumed to be uniform throughout the reach and the slope may be calculated with equation (4) below, using the measured values at the end sections. Generally elevations taken from topographic maps are not accurate enough to make reasonable slope calculations in the channel lengths used for slope-area calculations.

Measurements should be made at the apparent high water line in the channel. If it is not clear from evidence along the banks, the high water mark may show on a post or other obstruction in the stream. If water depths are visible only at scattered locations, it would be advisable to locate the end and intermediate cross sections at those points.

$$S = (E_1 - E_2) / (D_2 - D_1) \quad (4)$$

WHERE: S = Slope of the reach (ft/ft)
 E_1 = Water surface elevation at the upstream section (ft)
 E_2 = Water surface elevation at the downstream section (ft)
 D_1 = Distance from the initial point to the upstream section (ft)
 D_2 = Distance from the initial point to the downstream section (ft)

It should be noted that equation (4) may yield a negative value, depending on the location of the initial point. Because Manning's equation assumes a downward slope in the direction of flow, any negative sign should be dropped.

The only remaining unknown in equation (1) is the roughness factor. The greatest error in the flow calculation will probably come from the n -value estimate. There are several books listed in [Table 1](#) which give descriptions or show pictures of various n -values. The values from the references in [Table 2](#) can be used to confirm the results obtained from equation (5). The variables for equation (5) can be found in [Table 2](#).

$$n = (n_0 + n_1 + n_2 + n_3 + n_4) m_5 \quad (5)$$

WHERE: n = composite roughness value (used in Manning's equation)
 n_0, n_1, n_2, n_3, n_4 , and m_5 = roughness components, given in [Table 2](#)

EXHIBIT VII-16 (cont.)

Table 1: Reference List for n-Values

1. Handbook of Hydraulics, 6th ed, by E. F. Brater and H. W. King, pp. 7-22.
2. Hydraulic and Excavation Tables. 11th ed. by U. S. Department of Interior, Bureau of Reclamation, pp. 9-12.
3. Open-Channel Hydraulics, by Ven Te Chow, pp. 101-123.
4. Roughness Characteristics of Natural Channels, Geological Survey Water-Supply Paper 1849, by H. H. Barnes. Jr.
5. Water Resources Engineering, 3rd ed. by p. K. Linsley and J. B. Franzini, p. 253.
6. Soil and Water Conservation Engineering, 2nd ed, by G. O. Schwab et al., pp. 631-632.

The formula may be used in conjunction with other charts, tables, or pictures to "double check" an n-value. Keep in mind that the same absolute roughness (size of the rock or gravel in the channel bed) does not always yield the same n-value. A larger channel will have a lower the n-value for the same absolute channel roughness.

Now that all the variables in equation (1) are known, it may be solved for the discharge in ft³/sec. Keep in mind this value is based on an assumption of uniform flow. The measurements in the channel will give some indication how inaccurate this assumption is. Be aware that deviation from the following will influence the accuracy of the flow estimate.

1. The channel cross sections should all have approximately the same area. Be concerned only if the area of one section is greater than twice the area of another section.
2. The slope of the water surface should be constant. If there is any section with adverse (back) slope, a more detailed investigation should be made. Variations in slope should not be of great concern if they tend to alternate steeper and flatter than the average for the reach. If most of the fall in the reach is at the upstream or downstream end, the probable error will increase.
3. If the channel material or condition changes within the reach, some error will be introduced even if an average n-value is used.

If intermediate cross sections are measured, the reach of channel selected may be broken up into several shorter reaches. The calculated flow from each of the shorter reaches may be compared. The relative difference in the discharges will give some indication of the error(s) introduced by the conditions listed above.

The slope-area measurement method is not intended to be a substitute for measuring devices or current meter methods. It will typically be less accurate and more time consuming than those methods. The error may be as low as $\pm 10\%$ for uniform channels where dimensions may be accurately measured. For non-uniform channels where the measurements are not accurate and the n-value is questionable, the error may be $\pm 50\%$. The slope-area method is most applicable in our work, when we encounter a dry ditch or natural stream.

EXHIBIT VII-16 (cont.)

Table 2. Values for Computation of the Roughness Coefficient

Channel Conditions		Values	
Material Involved	Earth	n 0	0.020
	Rock Cut		0.025
	Fine Gravel		0.024
	Coarse Gravel		0.028
Degree of Irregularity	Smooth	n 1	0.000
	Minor		0.005
	Moderate		0.010
	Severe		0.020
Variations of Channel Cross Sections	Gradual	n 2	0.000
	Alternating Occasionally		0.005
	Alternating Frequently		0.010 - 0.015
Relative Effect of Obstructions	Negligible	n 3	0.000
	Minor		0.010 - 0.015
	Appreciable		0.020 - 0.030
	Severe		0.040 - 0.060
Vegetation	Low	n 4	0.005 - 0.010
	Medium		0.010 - 0.025
	High		0.025 - 0.050
	Very High		0.050 - 0.100
Degree of Meandering	Minor	n 5	1.000
	Appreciable		1.150
	Severe		1.300

EXHIBIT VII-16 (cont.)

Figure 1.

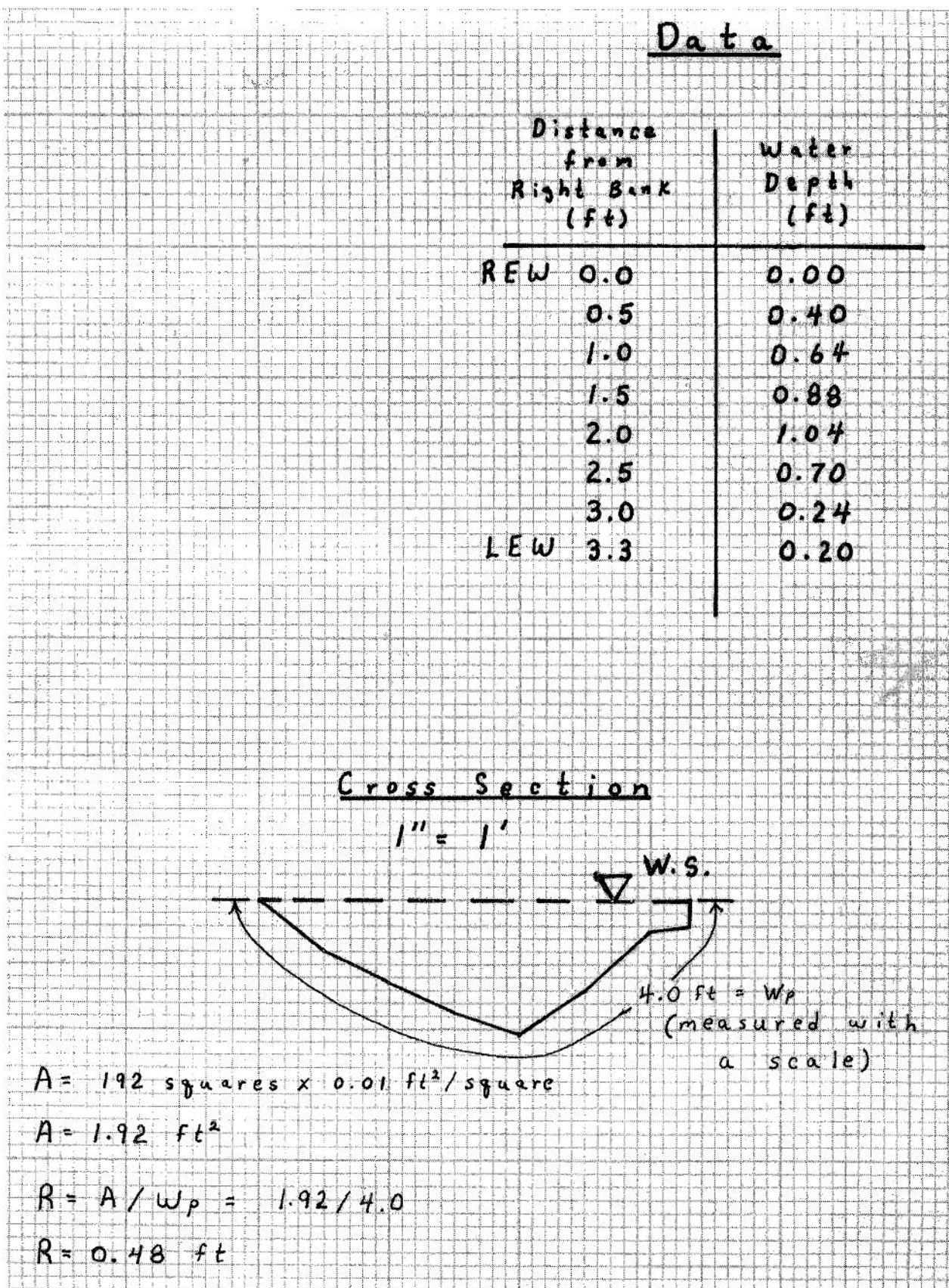
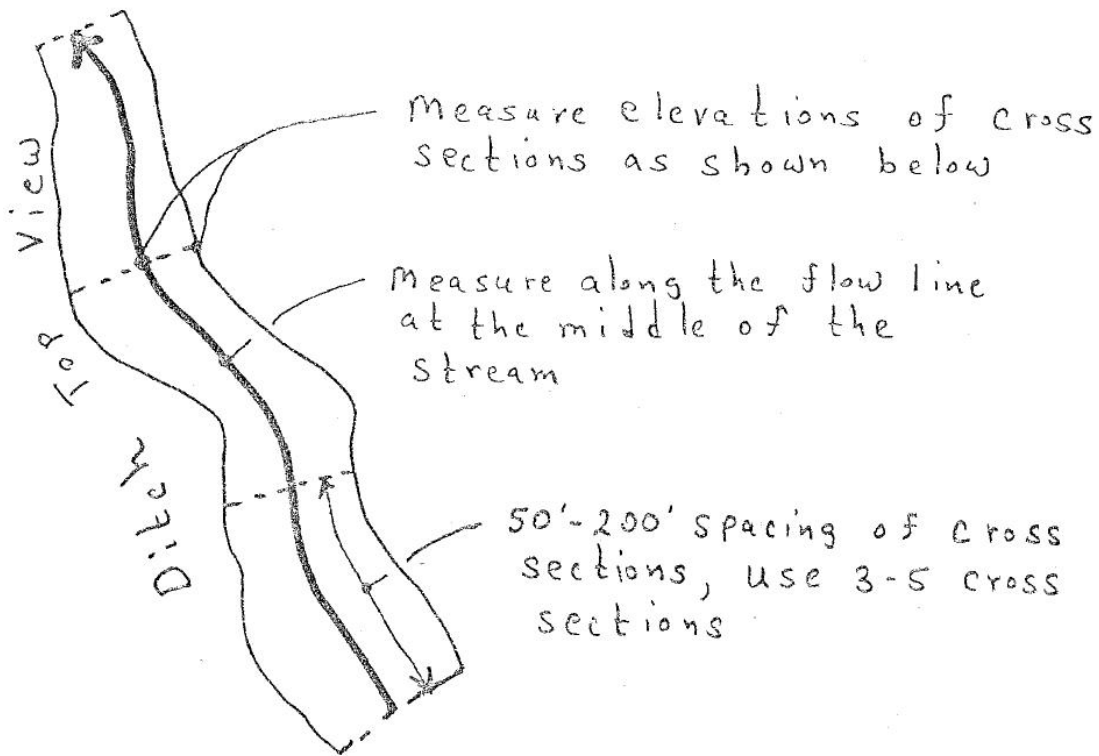


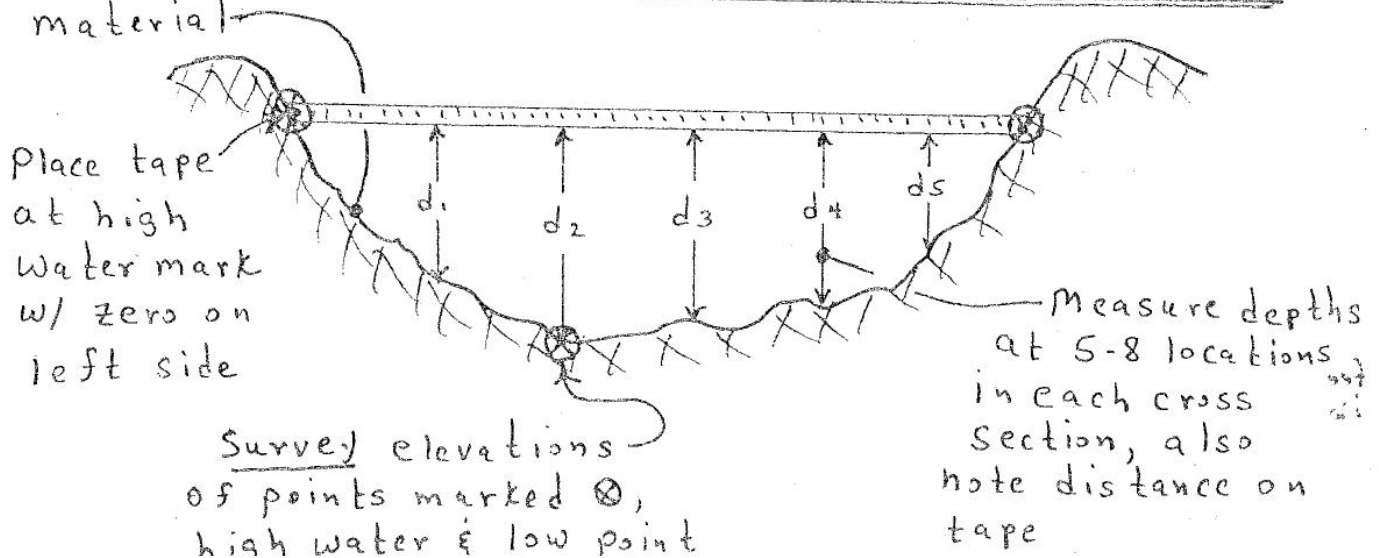
EXHIBIT VII-16 (cont.)

GATHERING DATA FROM DEWATERED DITCHES
IN ORDER TO MAKE
A DITCH CAPACITY ESTIMATE

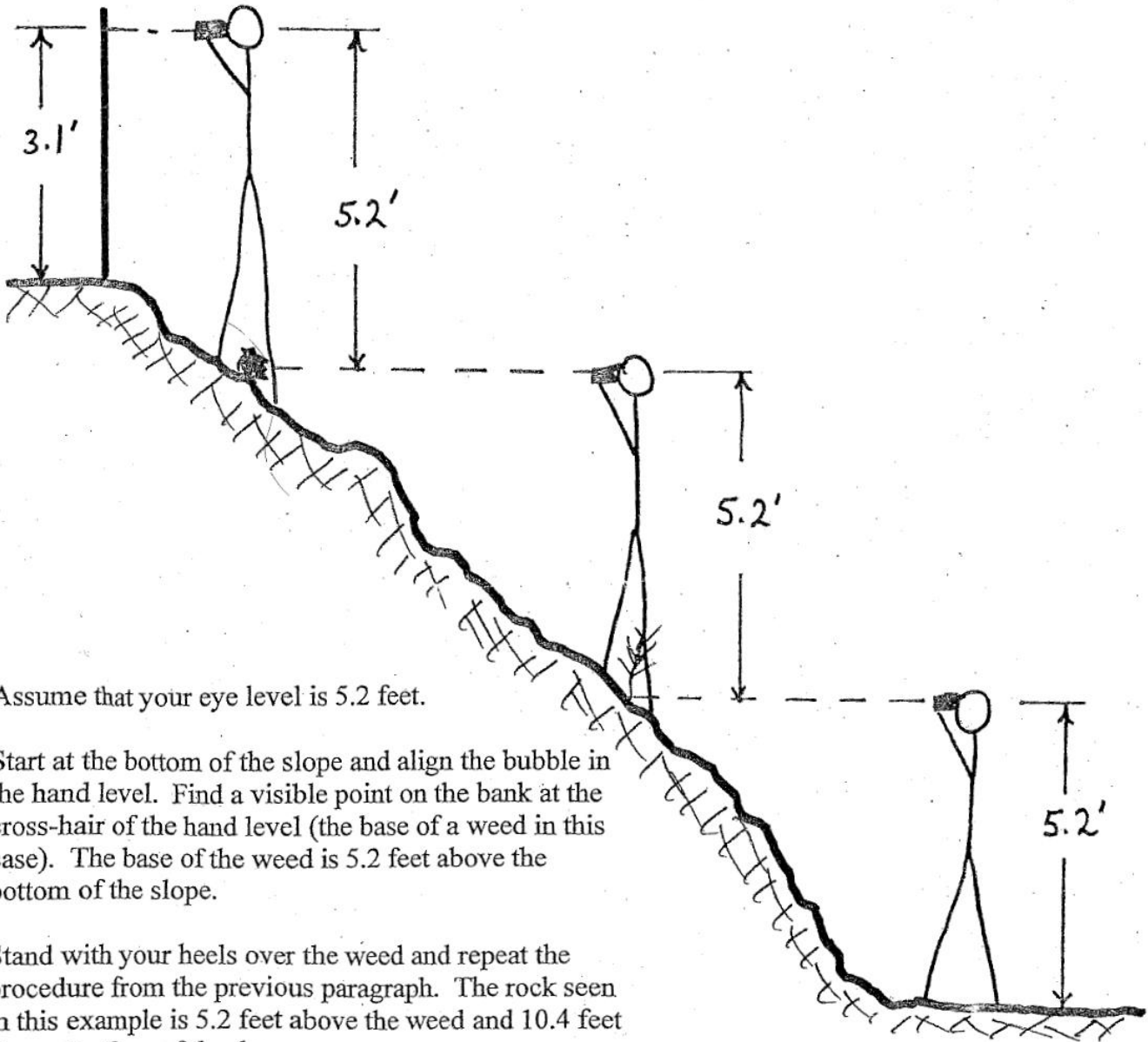


Take photos at
each section
showing ditch
material

Ditch Cross Section (Looking Downstream)



MEASURING VERTICAL DISTANCES ON SLOPES USING A HAND LEVEL



Assume that your eye level is 5.2 feet.

Start at the bottom of the slope and align the bubble in the hand level. Find a visible point on the bank at the cross-hair of the hand level (the base of a weed in this case). The base of the weed is 5.2 feet above the bottom of the slope.

Stand with your heels over the weed and repeat the procedure from the previous paragraph. The rock seen in this example is 5.2 feet above the weed and 10.4 feet above the face of the dam.

Move to the rock and stand with your heels at the base of the rock. By placing a tape or sight rod at the top of the slope you can read that your eye level is 3.1 feet above the top of the slope. Your third eye level is 15.6 feet (3×5.2 feet) above the bottom of the slope.

However you are 3.1 feet over the top at this point so the height of the slope is **12.5 feet** (15.6 feet [3 eye levels] minus 3.1 feet of overshoot).

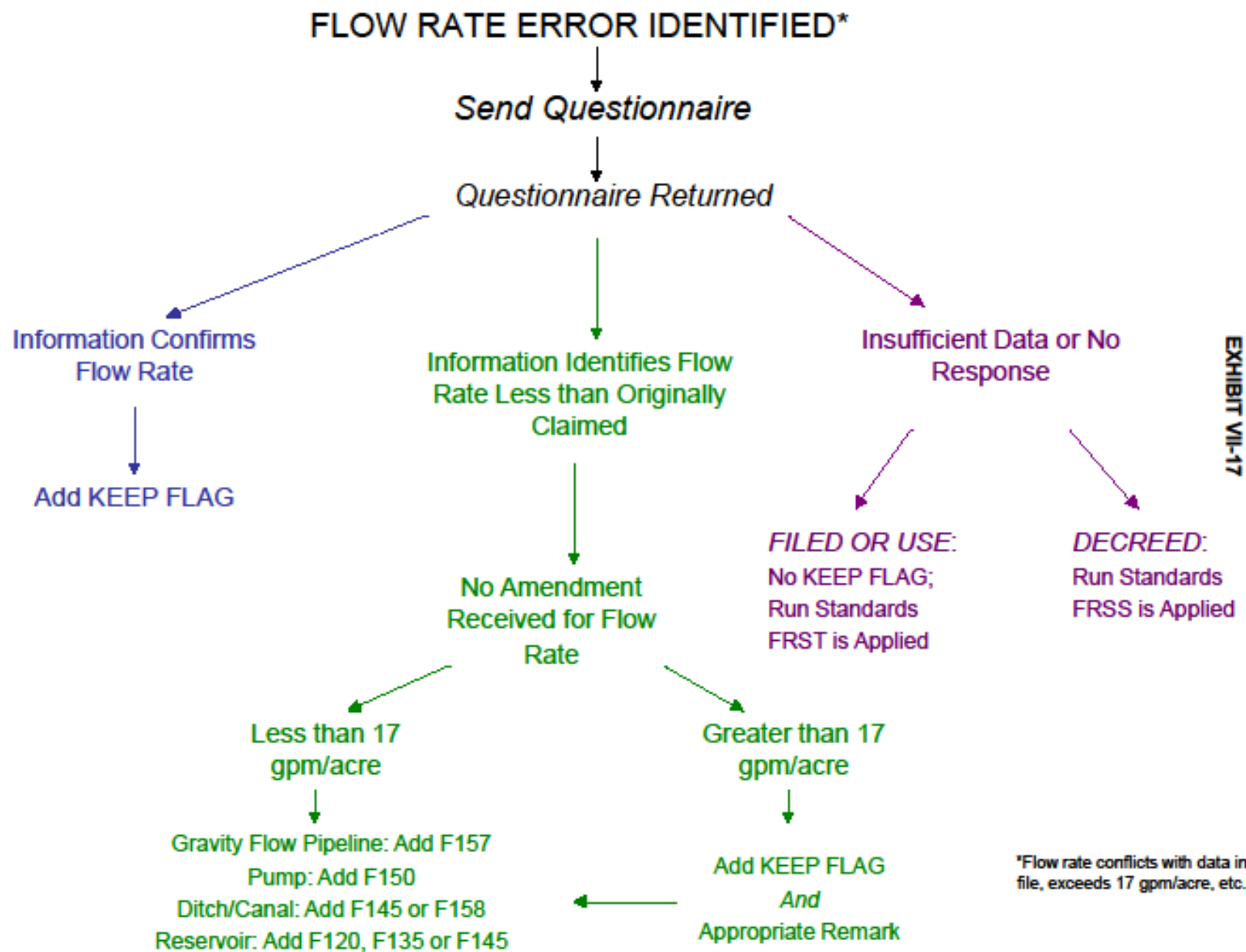


EXHIBIT VII-18

IRRIGATION FLOW AND VOLUME CRITERIA

Type of Right	Irrigation Type	Diversion Means	Flow	Volume	Standard
Decreed	Prior decree		As decreed*	As decreed	17 gpm/acre
Decreed	Onstream Reservoir		No flow*	Volume	Per climatic area
Decreed	Offstream Reservoir		Flow*	No Volume	17 gpm/acre
Decreed	Water Spreading		As decreed*		
Decreed	Subirrigation & Natural Overflow		As decreed*		
Decreed		Pump	As decreed*		17 gpm/acre
Decreed		Gravity Flow Pipeline	As decreed*		17 gpm/acre
Decreed		Ditches & Canals	As decreed*		17 gpm/acre
Filed & Use	Onstream Reservoir		No flow	Volume if not a direct flow system	Zero Flow and Flag; volume per climatic area
Filed & Use	Offstream Reservoir		Flow	Volume if stored water	17 gpm/acre; volume per climatic area
Filed & Use	Water Spreading		No flow, unless reservoir involved	Volume	Per climatic area
Filed & Use	Subirrigation & Natural Overflow	No Flow	No Flow	No Volume	
Filed & Use	Subirrigation-controlled	Pump	Flow	No Volume	17 gpm/acre
Filed & Use		Ditches & Canals		No Volume	17 gpm/acre
Filed & Use		Gravity Flow Pipelines	Flow	No Volume	17 gpm/acre
Filed & Use	Direct Flow Systems		Flow	No Volume	17 gpm/acre

* See Filed and Use Rights if no flow rate was decreed.

EXHIBIT VIII-1

Available at \WATER_RTADJUDICATION\Claim Examination Documents\Questionnaires

DOMESTIC QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Domestic use.
 - a. How many houses on your property are currently using the water?
 - b. How many people are using the water?
 - c. How many acres of lawn and garden are you irrigating?
2. Physical status of the domestic system.
 - a. Is the water system in working order and operational?
 - b. What physical evidence and structures are at the site (storage tanks, pipelines, pumps, etc.)?
 - c. If not presently being used, in what condition are the site and structures?
3. Priority date.
 - a. When was water first used on your property for domestic use?
 - b. What evidence can you provide to support the date of first water use?
 - c. If not presently being used, when was it last used for domestic purposes?
 - d. Do you also have a provisional permit, ground water certificate, or exempt right issued by DNRC to appropriate water for this system? If yes, what is the water right number?

4. Describe the design and operation of the water system for the following elements.

a. Diversion structure and conveyance facility.

(1) Method or type (headgate, pump, pipeline, dam, etc.):

(2) Dimension (pump size, rpm, etc.; headgate dimensions, etc.):

(3) Materials:

(4) Date constructed:

b. Flow rate and volume.

(1) What is the maximum flow rate of the system? Has the flow rate ever been measured? If yes, what were the results?

(2) What is the maximum volume in acre-feet used per year (1 acre-foot = 325,851 gallons)? How was the volume determined?

c. Period of use.

(1) What times of the year has the water been used through the system for this purpose (months/days)?

(2) How many hours per day (average) has the system been used for this purpose?

5. Are there any other parties using the same water system? If yes, please list the parties.

6. Additional remarks.

7. Person completing questionnaire.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ___ Sent to Claimant ___ Telephone Interview
 ___ Personal Interview ___ Other: _____

Reason: ___ DNRC Examination
 ___ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

EXHIBIT IX-1

COURT ORDERS FOR VOLUME DECREED ON USA CLAIMS

IN THE WATER COURTS OF THE STATE OF MONTANA

IN THE MATTER OF THE ADJUDICATION)
OF THE EXISTING RIGHTS TO THE USE)
OF ALL THE WATER, BOTH SURFACE AND)
UNDERGROUND WITH ALL WATER BASINS,)
STATE OF MONTANA.)

O R D E R

The Motion of the United States of America moving this Court to direct the Department of Natural Resources and Conservation to include storage volumes in the abstracts of water rights has been presented to this Court.

The Court has carefully considered the requests of this Motion and agrees with the moving party that such action on behalf of the Department of Natural Resources and Conservation in preparing abstracts of water rights in the future will be helpful, beneficial and time saving to the Department, to the Water Masters and to the general operation of the Court.

ORDERED, that the Motion is GRANTED.

DATED this 17th day of June, 1985.

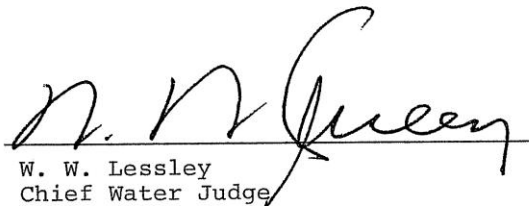
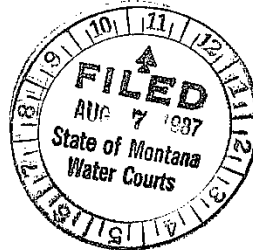

W. W. Lessley
Chief Water Judge

EXHIBIT IX-1 (cont.)

IN THE WATER COURTS OF THE STATE OF MONTANA

IN THE MATTER OF THE ADJUDICATION)
OF THE EXISTING RIGHTS TO THE USE)
OF ALL THE WATER, BOTH SURFACE AND)
UNDERGROUND WITHIN ALL WATER BASINS,)
STATE OF MONTANA.)



O R D E R

It is ORDERED that the Motion for Order Directing DNRC to Include Volume Claimed for all Lakes and Reservoirs is GRANTED.

It is ORDERED that the DNRC shall include the volume claimed rather than 30 gallons per day per animal unit for all stock and wildlife pothole lake water rights claimed by the United States of America.

This Order applies to all Temporary Preliminary, Preliminary and Final Decrees which were issued prior to the date of this Order, specifically Basins 38H, 39E, 39F, 39FJ, 39G, 39H, 40A, 40D, 40E, 40G, 40L, 40N, 40P, 41E, 41F, 41H, 41K, 41N, 41S, 41U, 42I, 42J, 42K, 42L, 43B, 43BJ, 43BV, 43C, 43QJ, 76B, 76C, 76D, 76E, 76G, 76GJ, 76I, 76J, 76K, 76M and 76N.

DATED this 7 day of August, 1987.

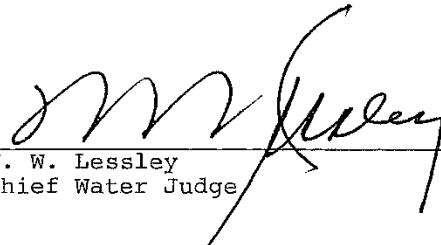

W. W. Lessley
Chief Water Judge

EXHIBIT IX-2

Montana Water Court
PO Box 1389
Bozeman, MT 59771-1389
1-800-624-3270 (In-state only)
(406) 586-4364
FAX: (406) 522-4131

FILED

FEB 12 2010

Montana Water Court

IN THE WATER COURT OF THE STATE OF MONTANA
UPPER MISSOURI DIVISION - BIG HOLE RIVER BASIN (41D)

OBJECTOR: United States of America
General Objection

CASE 41D-3

ORDER SUSTAINING USA GENERAL OBJECTION

The United States of America filed its General Objection to the Water Court decrees in Basins 41D, 42B, and 42C. The objections urge the Court and the Department of Natural Resources and Conservation, during the pre-decree claim examination process, to identify a legal description of the private land to which private stockwater claims used on federal lands are appurtenant.

A telephone conference was held on July 23, 2009 to discuss the filed objections. The United States of America was represented by attorneys Jody Miller, Roselyn Rennie, and John Chaffin. Some staff members from the federal agencies represented by the attorneys were also present. Jim Gilman, Adjudication Bureau Chief at the time, was present for the DNRC. The United States advised that grazing permit information was not readily available for the DNRC to routinely access during its claim examination effort.

Following a discussion of the issues, it was agreed that the Court would confer with some of the more experienced DNRC claim examination staff to consider various options to identify appurtenant legal descriptions and to hold additional discussions with the federal representatives. Various follow up discussions took place.

The General Objection and the subsequent discussions persuaded the Court that adopting the principles contained in the General Objection would be a benefit to water users, the United States, and the Water Court. When the DNRC examines stockwater claims and determines the place of use is on federal public lands, it adds an issue remark that the right appears to be on federal land. Once a water rights decree is issued, that remark often triggers an objection, usually from the United States. If the issue remark is not resolved through the objection process, §§ 85-2-247 and 85-2-248, MCA require the Water Court to weigh the issue remark against the claimed water right and resolve the issue.

As noted by the United States in its General Objection, the resolution of the remark historically has been to identify the private lands to which the water right is appurtenant in accordance with the holdings in Water Court Case 41G-190. *See also* June 29, 2005 Opinion in Case 40E-A. The DNRC can accomplish the same result in a more informal setting during its claim examination process and before the decree is issued; thereby releasing federal and Water Court resources to resolve more contested issues.

To implement the principles proposed by the United States in its General Objection, the Court prepared a draft order and circulated it by email on August 26, 2009 for review and comment. The draft order directed the DNRC, through claimant contact, to obtain a legal description of the grazing permit “base” property and to use all or part of that legal description to identify the private property to which the water right claim used on federal public lands was appurtenant. In its General Objection, the United States did not address the use of geocodes and they were not referenced in the Court’s draft order.

On September 11, 2009, the United States filed its Response to the Court’s draft order and recommended some modifications to the draft order, including the addition of geocodes within the appurtenancy remark. In response, the Court revised the draft order and on October 28, 2009, the Court circulated the draft by email to the United States and the DNRC for comments. The Court did not include any reference to geocodes in its second draft order.

The Court convened a telephone conference call with the United States and the DNRC on December 2, 2009 to discuss the second draft order. During this call, the DNRC explained the new state procedures to track water right transfers and the use of geocodes in that process.

Tracking water right transfers has been a difficult task for the DNRC over the years. Various statutory modifications have been made in the last twenty-five years in an effort to find the best solution to maintain and facilitate a reliable record of water right ownership. *See, e.g.*, legislative history beneath § 85-2-421, MCA. The most recent solution was enacted in the 2007 Legislature (House Bill 39) and involves an interaction between the DNRC and the Department of Revenue (DOR) whenever real property transfers. *See* Section 85-2-424, MCA. According to a November 2007 DNRC press release,¹ enactment of HB 39 will:

facilitate DOR sharing its property database with DNRC. The agency will link geocodes to water right parcels. Then DOR will forward on a periodic basis to DNRC the new property owners and addresses with the property geocode. DNRC can then upload the data file, match the geocodes and update the new owner's names in their water right records.

On February 1, 2010, the United States filed its Response to the Court's second draft order. In its response, at page 3, the United States advised that its basin wide objection on the issue of identifying lands to which private stockwater rights on federal lands are appurtenant would be resolved if the Court were to include the following language in its final Order to DNRC:

For each private stockwater right that has a place of use on federal land, the DNRC will also identify a geocode or geocodes, generated by the Montana Department of Revenue, for the private property to which the stockwater right is appurtenant. The DNRC will attach the geocode(s) to the claim in the DNRC database and also add the geocode(s) to the abstract of water right.

¹ *See* http://dnrc.mt.gov/wrd/water_rts/HB39.pdf (last accessed on February 4, 2010).

The United States also noted that the DNRC includes geocodes in its database and that it includes geocodes on the abstracts of other water rights. Therefore, it argues the codes should be included within the appurtenancy remark that is to be printed on the claim abstracts of private water rights used on federal public lands.

A geocode is a 17 digit DOR parcel identifier that one “is unlikely to know” unless one is a “DOR employee, realtor, assessor, or someone familiar with the geocode system.”²

Although geocodes will be linked to property descriptions when property transfers take place, including to property on which private water rights used on federal lands are appurtenant, the Court is not convinced that requiring DNRC to identify and include geocodes on the abstracts of any water right claims will be helpful at this time. Geocodes may be the best solution to create and maintain a reliable water right database, but the Court believes it is premature to make that judgment when the new system is not yet fully functional. The HB 39 geocode ownership update process was to take effect on July 1, 2008. The implementation date is now at least two years behind schedule. The current estimated completion date is June 2010. *See* DNRC January 2010 Report to EQC.³

Once the system is fully functional, real world testing will test its strengths and weaknesses. At some future date, the issue can be revisited.

From a legal standpoint, there is no requirement to include geocodes in final decrees. *See* § 85-2-234, MCA. Although their use could be mandated under the discretionary authority contained in § 85-2-234(i), MCA, that decision need not be made today. Such a decision would be more appropriate to make at a future date with the benefit of time spent in observing the new ownership update system in operation. In the

² *See* Montana Cadastral Mapping Website information at <http://gis.mt.gov/Help/TextWebTutorial.htm> and at <http://gis.mt.gov/InfoHtm/parcelmeta.html> (both last accessed on February 4, 2010).

³ http://leg.mt.gov/content/Committees/Interim/2009_2010/Environmental_Quality_Council/Meeting_Documents/January/adjudprogressjan10.pdf (last accessed on February 4, 2010).

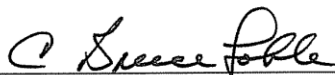
interim, maintaining the geocode information in the DNRC database appears to be a benefit for the water right ownership update process. However, the current record does not demonstrate sufficient benefits to mandate the inclusion of geocodes within the appurtenancy remarks which are to be printed on the claim abstracts of private water rights used on federal public lands.

Although the United States attorneys and their agency staff may be familiar with geocodes, the DOR website indicates that most people are unlikely to know what they are. Without more evidence to demonstrate that adding an unfamiliar 17 digit code to a claim abstract will be valuable or helpful to the thousands of water right claimants who need to refer to and decipher these water right documents, the Court is unwilling to mandate this requirement or even encourage the printing of geocodes on abstracts at this time.

The Court does agree with the major principle outlined in the General Objection filed by the United States in Basins 41D, 42B, 42C and it has issued an Order Directing DNRC to Identify the Appurtenant Lands of Private Stock Claims Used on Federal Public Lands. A copy of the Order is attached hereto. As noted earlier, the attached Order does not mandate the DNRC to include geocodes on the abstracts.

This decision is applied to the General Objections filed by the United States of America on this issue in Basins 41D, 42B, 42C and will be applied to the same issue raised as issue 4, pages 3-5, of the General Objections to the Preliminary Decree filed by the United States on January 20, 2010 in the Beaver Creek (Basin 40M) Decree.

DATED this *12* day of February 2010.



C. Bruce Loble
Chief Water Judge

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Montana DNRC
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Helena MT 59620-1602

Service List Updated 2-12-10

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FILED

FEB 12 2010

Montana Water Court

MONTANA WATER COURT

**ORDER DIRECTING DNRC TO IDENTIFY THE APPURTENANT LANDS OF
PRIVATE STOCK CLAIMS USED ON FEDERAL PUBLIC LANDS
- STATEWIDE -**

In response to the general objections of the United States of America filed in Basins 41D, 42B, and 42C, the Water Court consulted with the Department of Natural Resources and Conservation (DNRC) and the United States on the issues raised in the USA objections. *See* Water Court Case 41D-3. The purpose of the consultations was to provide the Court with suggestions on general procedures to identify private lands to which water right claims on federal public lands were appurtenant. The concept of using a “base property” legal land description analysis was the primary focus of the discussions.

With respect to USDI-Bureau of Land Management (“BLM”) and USDA-Forest Service (“Forest Service”) administered lands, the United States advised that it generally defines the term “base property” to include land and basic livestock management facilities, structures, and improvements that comprise a farm or ranch operation; that a legal land description of base property does not usually include an entire ranch description; and that the trend since 2003 for the Forest Service is to describe smaller parcels of land as base property. *See* United States Response filed September 11, 2009, Water Court Case 41D-3, citing C.F.R. § 4110.2-1 (2008) and Forest Service Handbook 2209.12 (R1 Supplement).

On U. S. Fish and Wildlife Service administered lands, base property descriptions are not utilized. *See* United States Response filed September 11, 2009 pp. 2-3, Case 41D-3. However, according to the DNRC, the vast majority of private water right claims used on federal public lands involve BLM and Forest Service administered lands.

Based on these discussions, the Court concludes that identifying legal land descriptions associated with a water user's "base property" would be a practical methodology to identify most appurtenant private land descriptions. For the situations in which claims examination and claimant contact is unsuccessful or when base property descriptions are not available, the DNRC will add an issue remark and the Water Court will resolve the matter after the decree is issued if it is not addressed and resolved by objection.

Accordingly, during its claims examination process, the DNRC will identify private lands to which private stockwater claims used on BLM and Forest Service administered lands are appurtenant and generally do so in the manner outlined in the remainder of this Order.

For every private stockwater claim that includes a place of use on BLM or Forest Service administered lands, the DNRC will include an information remark on the claim abstract identifying the private land to which the water right is appurtenant ("appurtenancy remark"). To obtain this information, the DNRC will contact the claimant and request a copy of the claimant's current federal grazing application and grazing permit for the purpose of obtaining the permit's base property description. A copy of the grazing application and permit must be added to the claim file.

The DNRC will extract and identify a "short land description" from the base property description to include in the appurtenancy remark. The DNRC will use the first appearing, lead in legal description of the base property description as the default short land description, unless the claimant specifies an alternative legal land description within the base property description, or the DNRC concludes a different land description within the base property description is more appropriate.

When all or part of the place of use is on federal public lands, the DNRC will place an information remark in the place of use field on the claim abstract similar to the following:

ALL OR A PART OF THE PLACE OF USE CONSISTS OF FEDERAL PUBLIC LANDS. THE WATER RIGHT USED ON THE PUBLIC LANDS IS APPURTENANT TO THE FOLLOWING PRIVATE LANDS: (INSERT SHORT LAND DESCRIPTION). SEE THE CLAIM FILE FOR THE COMPLETE LEGAL LAND DESCRIPTION OF THE PRIVATE LAND TO WHICH THIS WATER RIGHT IS APPURTENANT.

If, on a rare occasion, the entire base property legal land description is identified in the appurtenancy remark, the DNRC shall place an information remark in the place of use field on the claim abstract similar to the following remark:

ALL OR A PART OF THE PLACE OF USE CONSISTS OF FEDERAL PUBLIC LANDS. THE WATER RIGHT USED ON THE PUBLIC LANDS IS APPURTENANT TO THE FOLLOWING PRIVATE LANDS: (INSERT LEGAL LAND DESCRIPTION).

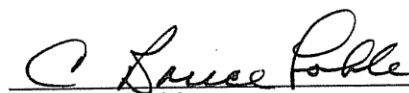
If the DNRC successfully identifies and applies the appurtenancy remark to the claim abstracts in the manner outlined in this Order, it need not add a federal land place of use or ownership issue remark on the same abstracts.

If the claim examination and claimant contact is inconclusive, or private water claims identify the place of use on U. S. Fish and Wildlife Service administered lands, the DNRC shall place an issue remark on the abstract similar to the following:

THE OWNERSHIP OF THIS RIGHT MAY BE QUESTIONABLE. PART OR ALL OF THE PLACE OF USE APPEARS TO BE ON FEDERAL LAND.

This Order is prospective. The DNRC does need not to reexamine previously examined stock claims unless the examiner concludes that doing so would bring greater consistency to claims with common ownership, to claims within similar source descriptions, or can be done in an efficient and cost-effective manner; subject always to the review of the decision by the DNRC supervisory chain of command.

DATED this 12 day of February 2010.



C. Bruce Loble
Chief Water Judge

John Peterson, Bureau Chief
Water Rights Adjudication Bureau
PO Box 201602
Helena, Montana 59620-1602

S:\Share\WC-BASIN FOLDERS\41D\CASES\41D-3\Ord to DNRC to Identify Appurtenant Lands for Private Stock Claims used on Federal Lands 2-12-2010.wpd

EXHIBIT X-1

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

INDUSTRIAL QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Please describe the following.
 - a. What is the industrial use (sawmill, smelter, factory, etc.) and how has water been used in connection with this purpose?
 - b. Briefly describe the size of the industrial facility.
 - c. Is this a private water system or is your water obtained from a municipal water system?
 - d. When was this industrial facility initially constructed and put into operation?
 - e. When was it last operated for this purpose?
2. Physical status of the industrial operation.
 - a. What physical evidence and structures are at the site?
 - b. In what condition are the site and structures?
 - c. Is the water system in working order and operational?
 - d. If not presently being used, describe any evidence at the site that water was used in the past.
3. Priority date.

- a. When was the water first used as part of this industrial activity?
 - b. What evidence can you provide to support the date of first water use?
 - c. Has the water been used every year since first use? If not, please explain.
4. Describe the original design and operation of the water system for the following elements.
- a. Diversion structure.
 - (1) Method or type (pump, pipeline, dam, etc.):
 - (2) Dimension (pump size, rpm, etc.; headgate dimensions, well depth, casing size, static water table, etc.):
 - (3) Date constructed:
 - (4) Present operational status:
 - b. Conveyance facility.
 - (1) Method or type:
 - (2) Dimensions and length:
 - (3) Slope or elevation change from point of diversion to place of use:
 - (4) Present operational status:
 - c. Flow rate.
 - (1) Have any measurements of water through the system been made? When and what were the results?

- (2) Have any flow rate records been maintained? Please provide copies or list the results.
- (3) What is the peak flow rate that has been diverted through the system for this purpose? How was it determined?
- (4) What is the average flow rate in a 24 hour period diverted through the system for this purpose?
- (5) When was water last diverted at the flow rate claimed?

d. Volume.

- (1) What is the maximum volume used per year for this purpose? How was it determined?
- (2) Have any volume records been maintained? Please provide copies or list the results.
- (3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

e. Period of use.

- (1) What times of the year has water been used through the system for this purpose (months/days)?
- (2) How many hours per day (average) has the system been used for this purpose?

- f. What happens to the water after it is used for this industrial activity? Is it returned to the same source?

5. Please describe all modifications or replacements to the original water system and the date each occurred.

6. Plans, maps or photos of the water system and municipality would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.

7. Additional remarks.

8. Person completing questionnaire.

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Please return this form to:

**[Office]
[Attention: Specialist's Name]
[Address]
[City, State, Zip Code]**

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
☐ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-2

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

MUNICIPAL QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Please describe the following.
 - a. What is the municipal use (community water supply, homeowners association, city, etc.) and how has water been used in connection with this purpose?
 - b. Briefly describe the size of the municipal system (number of households, businesses, parks, etc.)
 - c. When was this municipal facility initially constructed and put into operation?
 - d. When was it last operated for this purpose?
2. Physical status of the municipal operation.
 - a. What physical evidence and structures are at the site (storage tanks, reservoirs, mainlines, laterals, etc.)?
 - b. In what condition are the site and structures?
 - c. Is the water system in working order and operational?
3. Priority date.
 - a. When was the water first used as part of this municipal system?
 - b. What evidence can you provide to support the date of first water use?

- c. Is the system currently used for diverting water for municipal purposes?
If not, when was the water last used for municipal purposes?
- 4. Describe the original design and operation of the water system for the following elements.
 - a. Diversion structure.
 - (1) Method or type (pump, pipeline, dam, etc.):
 - (2) Dimension (pump size, rpm, etc.; headgate dimensions, well depth, casing size, static water table, etc.):
 - (3) Materials:
 - (4) Date constructed:
 - (5) Present operational status:
 - b. Conveyance facility.
 - (1) Method or type:
 - (2) Dimensions and length:
 - i. mainline
 - ii. laterals
 - (3) Materials:
 - (4) Slope or elevation change from point of diversion to place of use (highest to lowest points):
 - (5) Present operational status:

c. Flow rate:

- (1) Have any measurements of water through the system been made? When and what were the results?
- (2) Have any flow records been maintained? Please provide copies or list the results.
- (3) What is the peak flow rate that has been diverted through the system for this purpose? How was it determined?
- (4) What is the average flow rate in a 24 hour period diverted through the system for this purpose?
- (5) When was water last diverted at the flow rate claimed?

d. Volume.

- (1) What is the maximum volume used per year for this purpose? How was it determined?
- (2) Have any volume records been maintained? Please provide copies or list the results.
- (3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

e. Period of use.

- (1) What times of the year has water been used through the system for this purpose (months/days)?
- (2) How many hours per day (average) is the system used for this purpose?

f. What happens to the water after it is used by this municipal system? Is it returned to the same source?

5. Please describe all modifications or replacements to the original water system and the date each occurred.

6. Plans, maps or photos of the water system and municipality would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.

7. Additional remarks.

8. Person completing questionnaire.

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Please return this form to:

**[Office]
[Attention: Specialist's Name]
[Address]
[City, State, Zip Code]**

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
☐ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-3

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

WILDLIFE QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Is the place of use a natural lake, natural stream channel, man-made reservoir, or other man-made facility such as a tank or pit? Please explain.
2. Is there a man-made diversion, impoundment or other facility to divert water to the claimed place of use? If not, please describe how and where the water is used.
3. Is the use commercial, recreational, breeding, food, etc.?
 - a. Generally, what species of wildlife use this water right?
 - b. If other than recreational use, what quantity of wildlife for commercial, breeding, food, etc. use this water right?
 - c. Are the animals fenced in, penned, or free roaming? If penned or fenced, please explain.
4. Is the point of diversion or place of use on property owned by the state or federal government? If yes, specify.
5. Describe the design and operation of the water system for the following elements.
 - a. Diversion structure (if any).

(1) Method or type of diversion structure (dam, headgate, pump, pipeline, etc.):

(2) Dimensions (pump size, rpm, etc.; headgate dimensions, etc.):

(3) Materials:

(4) Date constructed:

(5) Present operational status:

b. Conveyance facility (if any).

(1) Method or type:

(2) Dimensions and length:

(3) Materials:

(4) Slope or elevation change from point of diversion to place of use:

(5) Present operational status:

c. Flow rate.

(1) Have any measurements of water through the system been made?
When and what were the results?

(2) Have any flow rate records been maintained? Please provide copies
or list the results.

(3) What is the peak flow rate that has been diverted through the
system for wildlife? How was it determined?

(4) What is the average flow rate in a 24 hour period diverted through the system for wildlife?

(5) When was water last diverted at the flow rate claimed?

d. Volume.

(1) What is the maximum volume used per year? How was it determined?

(2) Have any volume records been maintained? Please provide copies or list the results.

(3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

e. Period of use.

(1) What times of the year has water been used through the system for this purpose (months/days)?

(2) How many hours per day (average) has the system been used for this purpose?

f. What happens to the water after it is used for wildlife? Is it returned to the same source?

6. Priority date.

a. When was the water first used for wildlife?

b. What evidence can you provide to support the date of first water use?

c. Has the water been used every year since first use? If not, please explain.

- d. Is the system currently used to divert water for wildlife? When was it last used for wildlife?
- e. If not presently being used, describe any evidence at the site that water was used in the past.
7. Plans, maps or photos of the water system and wildlife facilities would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.
8. Additional remarks.
9. Person completing questionnaire.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
 ☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
 ☐ Other: _____

Time and Location: _____
Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-4

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

FISH AND WILDLIFE QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Is the place of use a natural lake, natural stream channel, man-made reservoir, or other man-made facility such as raceways or tanks? Please explain.
2. Is there a man-made diversion, impoundment or other facility to divert water to the claimed place of use? If not, please describe how and where the water is used.
3. Is the water diverted only for fish, only for wildlife, or for both?
 - a. If for fish:
 - (1) Is this use commercial, recreational, breeding, food, etc.?
 - (2) What types of fish are raised?
 - (3) If other than recreational use, what quantity of fish for commercial, breeding, food, etc. use this water right?
 - b. If for wildlife:
 - (1) Is this use commercial, recreational, breeding, food, etc.?
 - (2) What type of wildlife?
 - (3) If other than recreational use, what quantity of wildlife for commercial, breeding, food, etc. use this water right?

- (4) Are the animals fenced in, penned or free roaming? If penned or fenced, please explain.
4. Is the point of diversion or place of use on property owned by the state or federal government? If yes, specify.
5. Please describe the design and operation of the water system for the following elements.
- a. Diversion structure (if any).
- (5) Method or type of diversion structure (dam, headgate, pump, pipeline, etc.):
- (1) Dimensions (pump size, rpm, etc.; headgate dimensions, etc.):
- (2) Materials:
- (3) Date constructed:
- (4) Present operational status:
- b. Conveyance system (if any).
- (1) Method or type:
- (2) Dimensions and length:
- (3) Materials:
- (4) Slope or elevation change from point of diversion to place of use:
- (5) Present operational status:
- c. Flow rate.

- (1) Have any measurements of water through the system been made? When and what were the results?
- (2) Have any flow rate records been maintained? Please provide copies or list the results.
- (3) What is the peak flow rate that has been diverted through the system for fish and wildlife? How was it determined?
- (4) What is the average flow rate in a 24 hour period diverted through the system for fish and wildlife?
- (5) When was water last diverted at the flow rate claimed?

d. Volume:

- (1) What is the maximum volume used per year? How was it determined?
- (2) Have any volume records been maintained? Please provide copies or list the results.
- (3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

e. Period of use:

- (4) What times of the year has water been used through the system for this purpose (months/days)?
- (5) How many hours per day (average) has the system been used for this purpose?

- f. What happens to the water after it is used for fish and wildlife? Is it returned to the same source?

- When was the water first used for fish and wildlife?
- What evidence can you provide to support the date of first water use?
- Has the water been used every year since first use? If not, explain.
- Is the system currently used to divert water for fish and wildlife?
- When was it last used for fish and wildlife?
- If not presently being used, describe any evidence at the site that water was used in the past.

8. Additional remarks.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
 ☐ Personal Interview ☐ Other:

Time and Location: _____
Reviewer: _____ Date: _____

EXHIBIT X-5

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

COMMERCIAL QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Please describe the following.
 - a. What is the commercial use (trailer court, restaurant, motel, etc.) and how has water been used in connection with this purpose?
 - b. Briefly describe the size of the commercial facility.
 - c. Is this a private water system or is your water obtained from a municipal water system?
 - d. When was this commercial facility initially constructed and put into operation?
 - e. When was it last operated for this purpose?
2. Physical status of the commercial operation.
 - a. What physical evidence and structures are at the site?
 - b. In what condition are the site and structures?
 - c. Is the water system in working order and operational?
 - d. If not presently being used, describe any evidence at the site that water was used in the past.

3. Priority date.

- a. When was the water first used as part of this commercial activity?
- b. What evidence can you provide to support the date of first water use?
- c. Has the water been used every year since first use? If not, please explain.
- d. Is the system currently used for diverting water for commercial purposes? When was the water last used for commercial purposes?

4. Describe the original design and operation of the water system for the following elements.

a. Diversion structure.

(1) Method or type (pump, pipeline, dam, etc.):

(2) Dimension (pump size, rpm, etc.; headgate dimensions, well depth, casing size, static water table, etc.):

(3) Materials:

(4) Date constructed:

(5) Present operational status:

b. Conveyance facility.

(1) Method or type:

(2) Dimensions and length:

(3) Materials:

(4) Slope or elevation change from point of diversion to place of use:

(5) Present operational status:

c. Flow rate.

(1) Have any measurements of water through the system been made? When and what were the results?

(2) Have any flow rate records been maintained? Please provide copies or list the results.

(3) What is the peak flow rate that has been diverted through the system for this purpose? How was it determined?

(4) What is the average flow rate in a 24 hour period diverted through the system for this purpose?

(5) When was water last diverted at the flow rate claimed?

d. Volume.

(1) What is the maximum volume used per year for this purpose? How was it determined?

(2) Have any volume records been maintained? Please provide copies or list the results.

(3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

e. Period of use.

(1) What times of the year has water been used through the system for this purpose (months/days)?

(2) How many hours per day (average) has the system been used for this purpose?

f. What happens to the water after it is used for this commercial activity? Is it returned to the same source?

5. Please describe all modifications or replacements to the original water system and the date each occurred.

6. Plans, maps or photos of the water system and municipality would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.

7. Additional remarks.

8. Person completing questionnaire.

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Please return this form to:

**[Office]
[Attention: Specialist's Name]
[Address]
[City, State, Zip Code]**

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
☐ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-6

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

MINING QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Please describe the following.
 - a. What type of mining operation (placer, hard rock, etc.) has been conducted on the site(s) associated with this claim? Please explain.
 - b. Was there a milling operation associated with this water right for concentrating the ore?
 - c. What amount of material was mined, milled or washed each year?
 - d. Are records available (i.e., mill receipts, operating permits or licenses, other written documents)? If so, please attach copies or list results.
2. Physical status of the mining operation.
 - a. What physical evidence and structures are at the site?
 - b. In what condition are the site and structures?
 - c. Is the water system in working order or operational?
 - d. If not presently being used, describe any evidence at the site that water was used in the past.
3. Priority date.

- a. When was the water first used as part of this mining activity?
 - b. What evidence can you provide to support the date of first water use?
 - c. Has the water been used every year since first use? If not, please explain.
 - d. Is the system currently used for diverting water for mining purposes?
 - e. When was the water last used for mining?
4. Describe the original design and operation of the water system for the following elements.
- a. Diversion structure.
 - (1) Method or type (headgate, pump, pipeline, dam, etc.):
 - (2) Dimension (pump size, rpm, etc.; headgate dimensions, etc.):
 - (3) Materials:
 - (4) Present operational status:
 - (5) Location on property:
 - b. Conveyance facility (if any).
 - (1) Method or type:
 - (2) Dimensions and length:
 - (3) Materials:

(4) Slope or elevation change from point of diversion to milling or mining equipment:

(5) Present operational status:

c. Milling or mining equipment that requires water.

(1) Type of mining equipment:

(2) Type of milling equipment:

(3) Present operational status:

d. Flow rate.

(1) Have any measurements of water through the system been made? When and what were the results?

(2) Have any flow rate records been maintained? Please provide copies or list the results.

(3) What is the peak flow rate that has been diverted through the system for this purpose? How was it determined?

(4) What is the average flow rate in a 24 hour period diverted through the system for this purpose?

(5) When was water last diverted at the flow rate claimed?

e. Volume.

(1) What is the maximum volume used per year for this purpose? How was it determined?

(2) Have any volume records been maintained? Please provide copies or list the results.

(3) If water is stored in a man-made impoundment, what is its capacity (ac-ft), surface acres (or dimensions) and maximum water depth?

f. Period of use.

(1) What times of the year has water been used through the system (months/days)?

(2) How many hours per day (average) is the system used?

(3) When in use, is the diversion turned off at night, or does it run 24 hours a day?

g. What happens to the water after being used in the mining or milling operation? Is it returned to the same source?

5. Please describe all modifications or replacements to the original water system and the date each occurred.

6. What is the name and registration or survey number for the mining operation (i.e., Mineral Survey No., Mineral Entry No., Mineral Certificate No., Mineral Patent No., etc.)?

7. Is the point of diversion or place of use on property owned by the state or federal government? If yes, specify.

8. Plans, maps or photos of the water system and municipality would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.

9. Additional remarks.

10. Person completing questionnaire.

Name: _____
Address: _____
Phone: _____
Signature: _____ Date: _____

Please return this form to: **[Office]**
 [Attention: Specialist's Name]
 [Address]
 [City, State, Zip Code]

For Department Use

Information obtained: ___ Sent to Claimant ___ Telephone Interview
 ___ Personal Interview ___ Other: _____

Reason: ___ DNRC Examination
 ___ Other: _____

Time and Location: _____
Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-7

Available at \WATER_RT\ADJUDICATION\Claim Examination Documents\Questionnaires

POWER GENERATION QUESTIONNAIRE

Return the questionnaire to the [OFFICE] by [DATE—30 DAYS]. Please call [PHONE] if you have questions or need assistance.

Your answers should reflect the practices in place prior to July 1, 1973. Please complete as much of the following information as possible.

1. Please describe the following.
 - a. When was the project initially constructed and put into operation?
 - b. When was water first used as part of the hydropower operation?
 - c. What evidence can you provide to support the date of first water use?
 - d. Is the system currently used to direct water for hydropower purposes?
 - e. When was water last used to generate power?
 - f. If the hydropower activities have not been used continuously, please list the periods (years) of operation.
2. Physical status of the hydropower operation.
 - a. What physical evidence and structures are at the site?
 - b. Is there evidence at the site that water was used in the past? If yes, please explain.
 - c. Is the system in working order or operational? Please describe its general condition.
 - d. If not presently being used, when was water last used?

3. Please describe the original design and operation of the water system for the following elements.

a. Diversion structure.

(1) Method or type (headgate, pump, pipeline, dam, etc.):

(2) Dimension (pump size, rpm, etc.; headgate dimensions, etc.):

(3) Materials:

(4) Present operational status:

b. Conveyance facility (if any).

(1) Method or type:

(2) Dimensions and length:

(3) Materials:

(4) Elevation change from point of diversion to power plant:

(5) Present operational status:

c. Power Plant.

(1) Type:

(2) Nameplate capacity or design flow rate:

(3) Present operational status:

d. Flow rate.

- (1) Have any measurements of water through the system been made? When and what were the results?
- (2) Have any flow rate records been maintained? Please provide copies or list the results.
- (3) What is the peak flow rate that has been diverted through the system for this purpose? How was it determined?
- (4) What is the average flow rate in a 24 hour period diverted through the system for this purpose?
- (5) When was water last diverted at the claimed flow rate?

e. Volume.

- (1) What is the maximum volume used for power generation per year? How was maximum volume determined?
- (2) Have any volume records been maintained? Please provide copies or list the results.
- (3) If a reservoir is involved, what is the maximum volume diverted into the reservoir per season?

f. Period of use.

- (1) What times of the year has water been used through the system for this purpose (months/days)?
- (2) How many hours per day (average) has the system been used for this purpose?

- g. What happens to the water after passing through the power plant? Is it returned to the same source?

4. Please describe all modifications or replacements to the original water system and the date each occurred.

5. Complete the following if a reservoir or storage is associated with this water right.
 - a. Describe the original storage capacity.
 - (1) Surface acres (or dimensions):

 - (2) Maximum water depth:

 - (3) Total storage capacity:

 - (4) Dead storage:

 - (5) Period of diversion into reservoir:

 - (6) Period of diversion from reservoir:

 - (7) Date constructed (first filling):
 - b. Describe any modification to the original storage capacity and date each has occurred.
 - c. If you claimed a flow rate for storage, please indicate how the flow rate was determined.

6. Plans, maps or photos of the water system and municipality would be helpful. In addition, copies of deeds, surveys, and operating licenses or permits would be useful.

7. Additional remarks.

8. Person completing questionnaire.

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Please return this form to:

[Office]

[Attention: Specialist's Name]

[Address]

[City, State, Zip Code]

For Department Use

Information obtained: ☐ Sent to Claimant ☐ Telephone Interview
 ☐ Personal Interview ☐ Other: _____

Reason: ☐ DNRC Examination
 ☐ Other: _____

Time and Location: _____

Reviewer: _____ Date: _____

Remarks:

EXHIBIT X-8

EVAPORATION LOSS

First, determine the climatic evaporation rate for the area.

- Mean Annual Evaporation: Shallow Lakes and Reservoirs--
The following Figures 1 through 3 were developed from evaporation data at individual weather stations. In western Montana, local experience and judgement should be used for particular locations to modify the 35" evaporation shown.
- To get a more accurate evaporation loss, you would account for yearly average precipitation in inches. You would subtract that number from the climatic evaporation rate and use that number in the equation.

To calculate Evaporation Losses:

Climatic evaporation rate determined: 35"

Surface Area x 35" divided by 12" = evaporation loss

Example: $0.7 \times 35" / 12" = 2.04$ ac/ft a year of evaporation loss

Formula for small ponds and pits where you know the length and width.

Length x Width / 43560 = Surface Area

Surface Area x depth x .5 = AC/FT Capacity

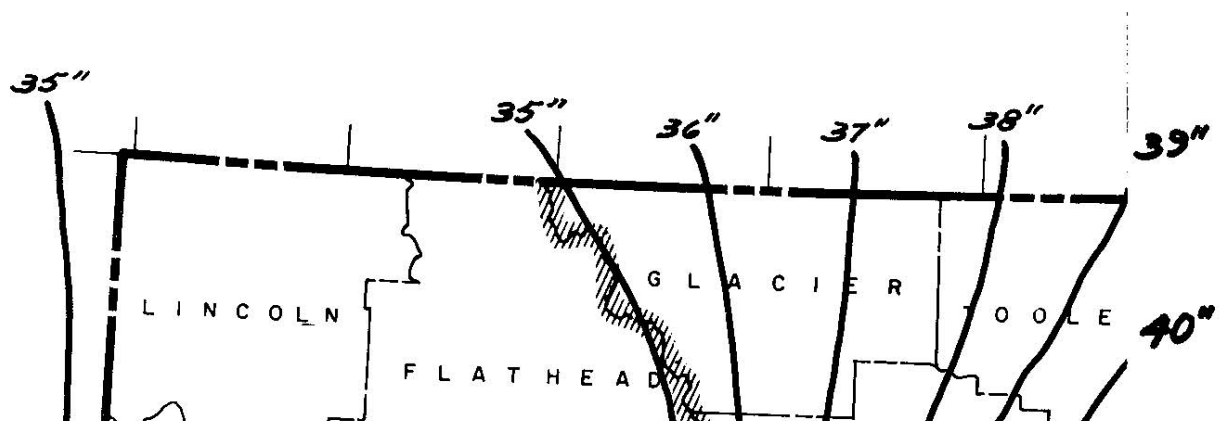
Surface x 35" / 12" = evaporation loss

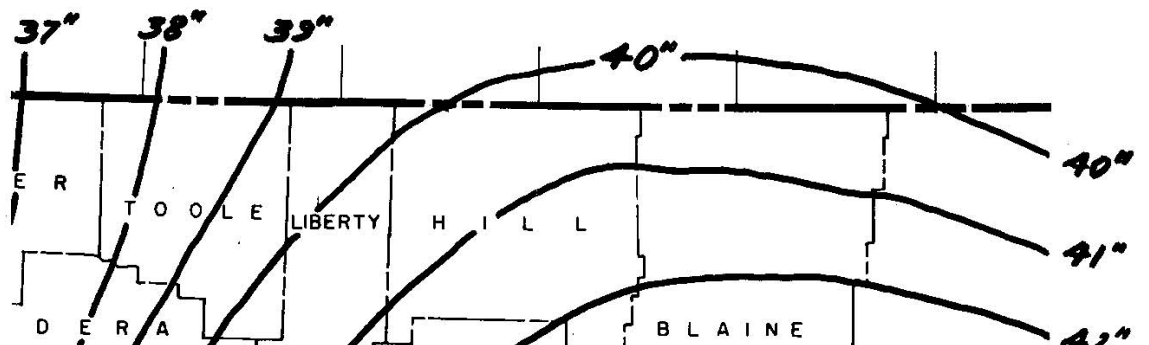
Example: for pond 180' long x 180' wide x 15' deep

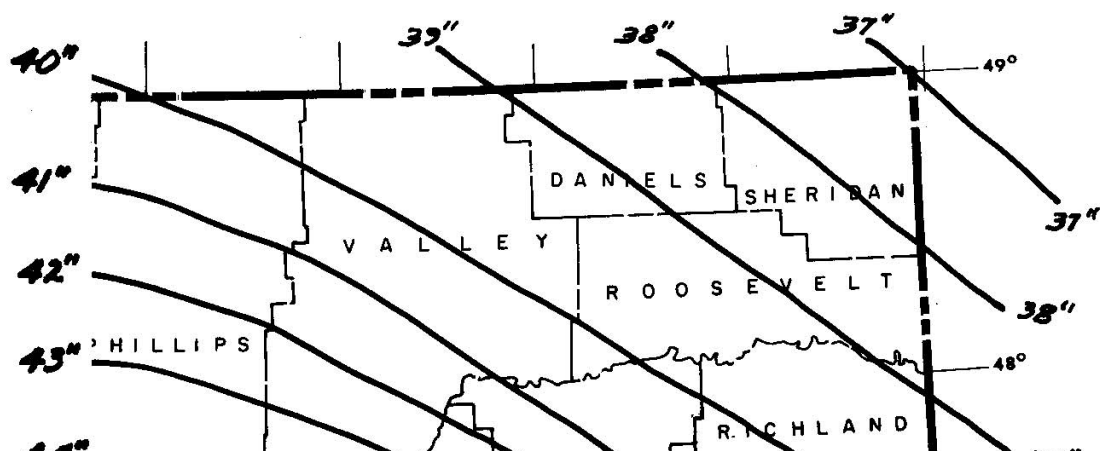
$180' \times 180' / 43560 = 0.74$ Surface Acres

$0.74 \times 15' \times .5 = 5.57$ AC/FT Capacity

$0.74 \times 35" / 12" = 2.16$ AC/FT evaporation loss







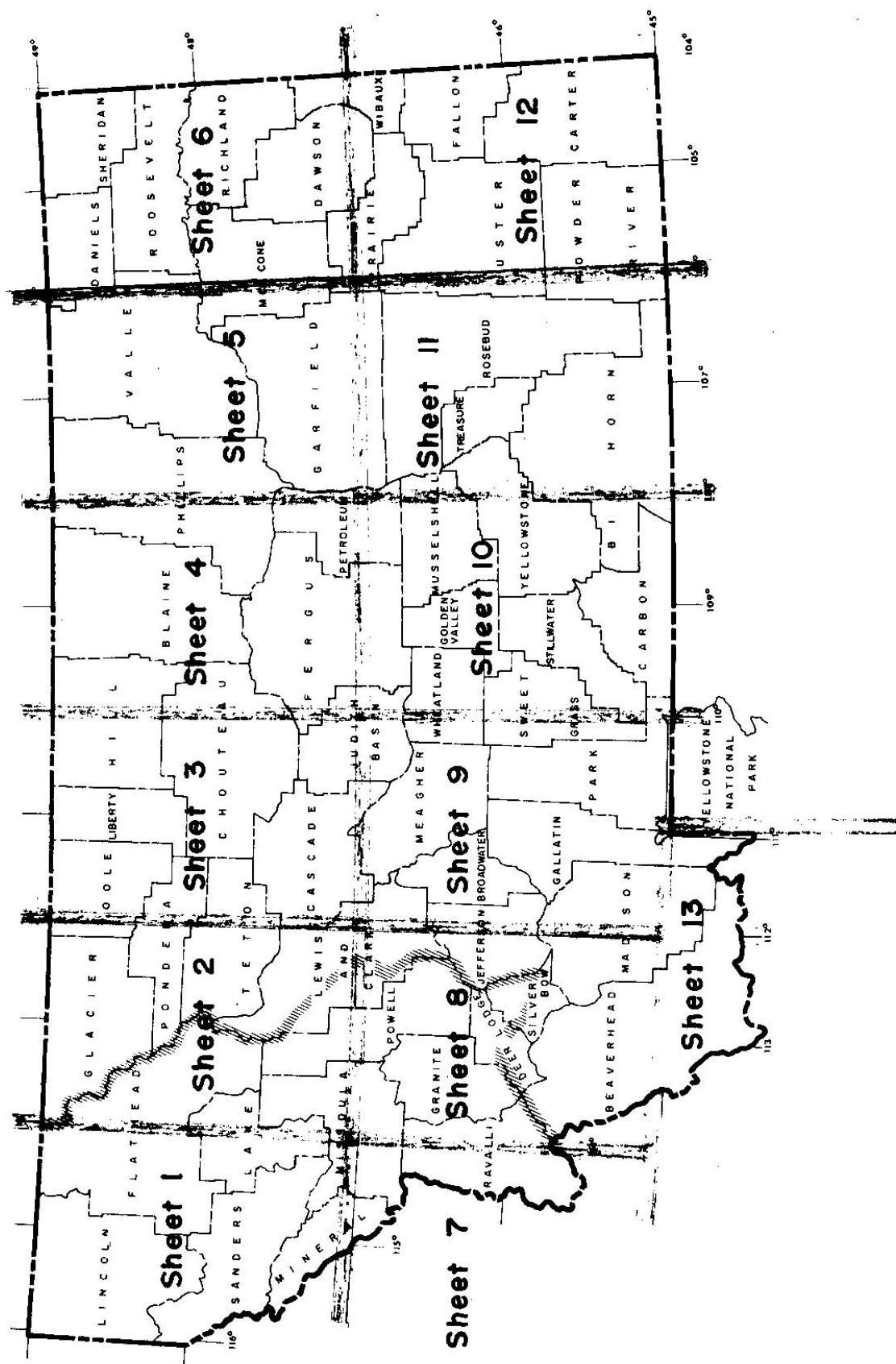
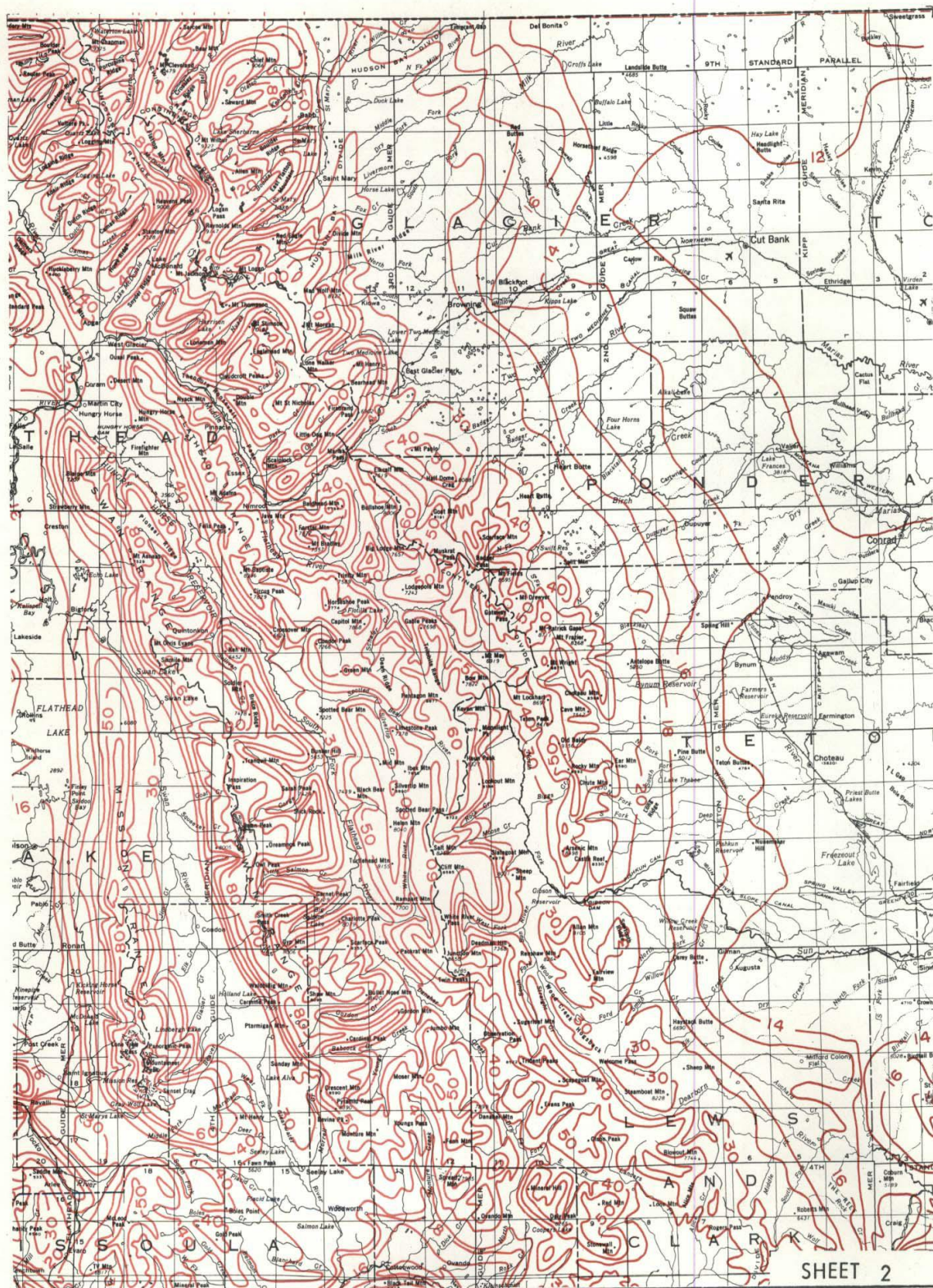
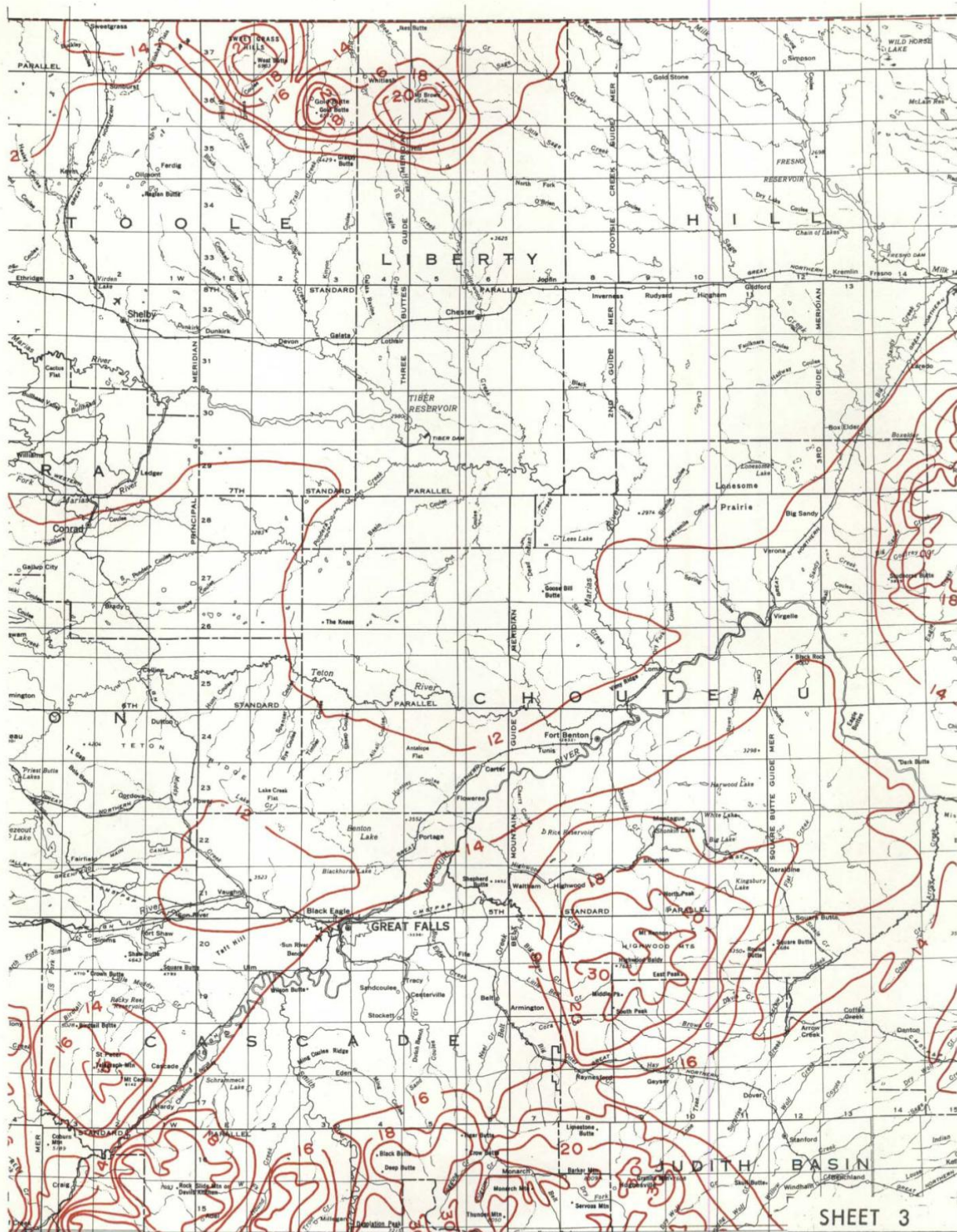


Fig. 4 DIRECTORY OF PRECIPITATION SHEETS



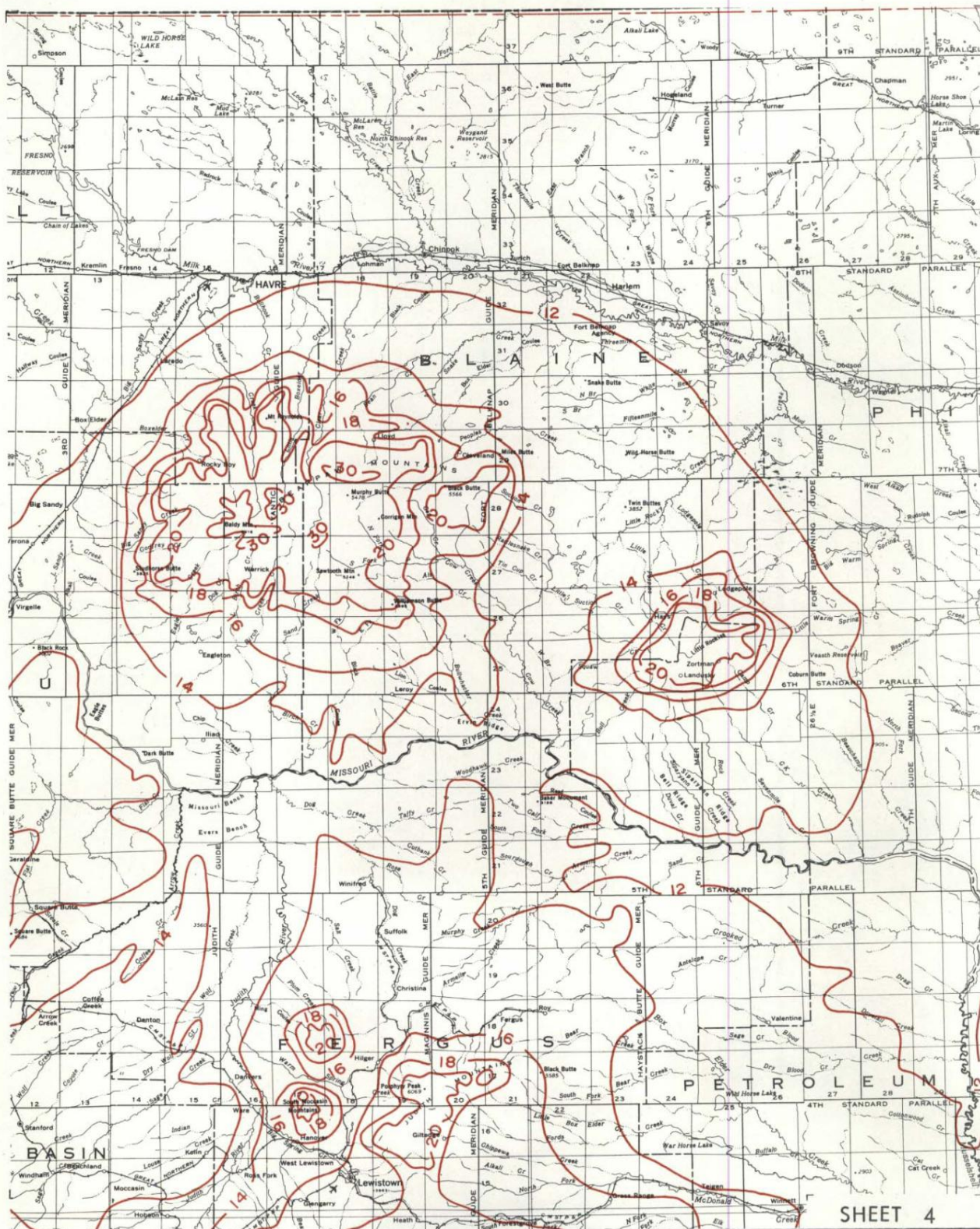
For In-Service use only until map based on 1941-70 period is prepared and released by SCS, National Weather Service and Montana Water Resources Board.
Prepared by: SCS, Box 970, Bozeman, MT.

Scale: 1 inch equals approx. 16 miles
STATE OF MONTANA
AVERAGE ANNUAL PRECIPITATION
IN INCHES
Soil Conservation Service 1953-67 Base



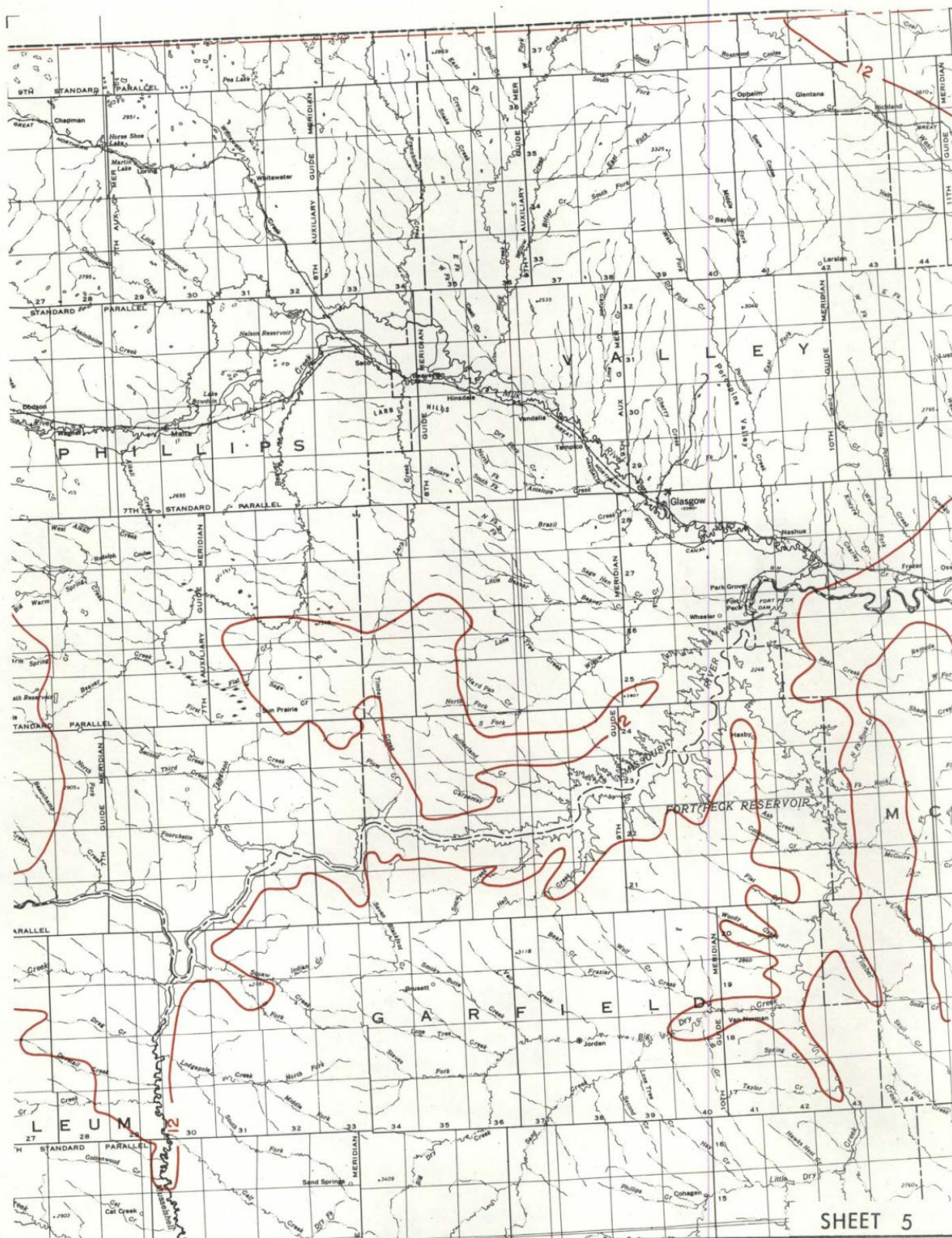
For In-Service use only until map based on 1941-70 period is prepared and re-released by SCS, National Weather Service and Montana Water Resources Board. Prepared by: SCS, Box 970, Bozeman, MT.

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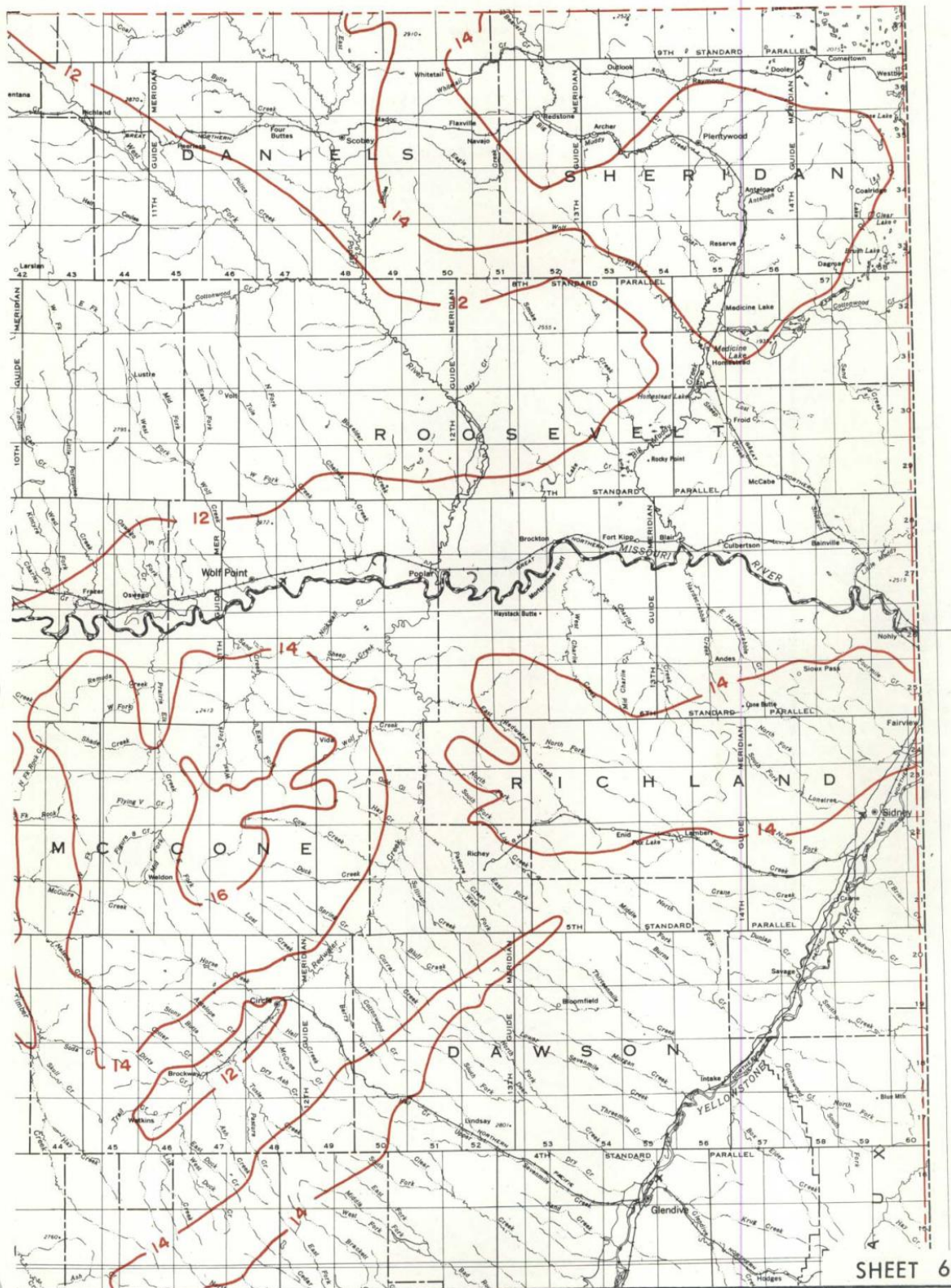
For In-Service use only until map based on 1941-70 period is prepared and re-released by SCS, National Weather Service and Montana Water Resources Board. Prepared by: SCS, Box 970, Bozeman, MT.

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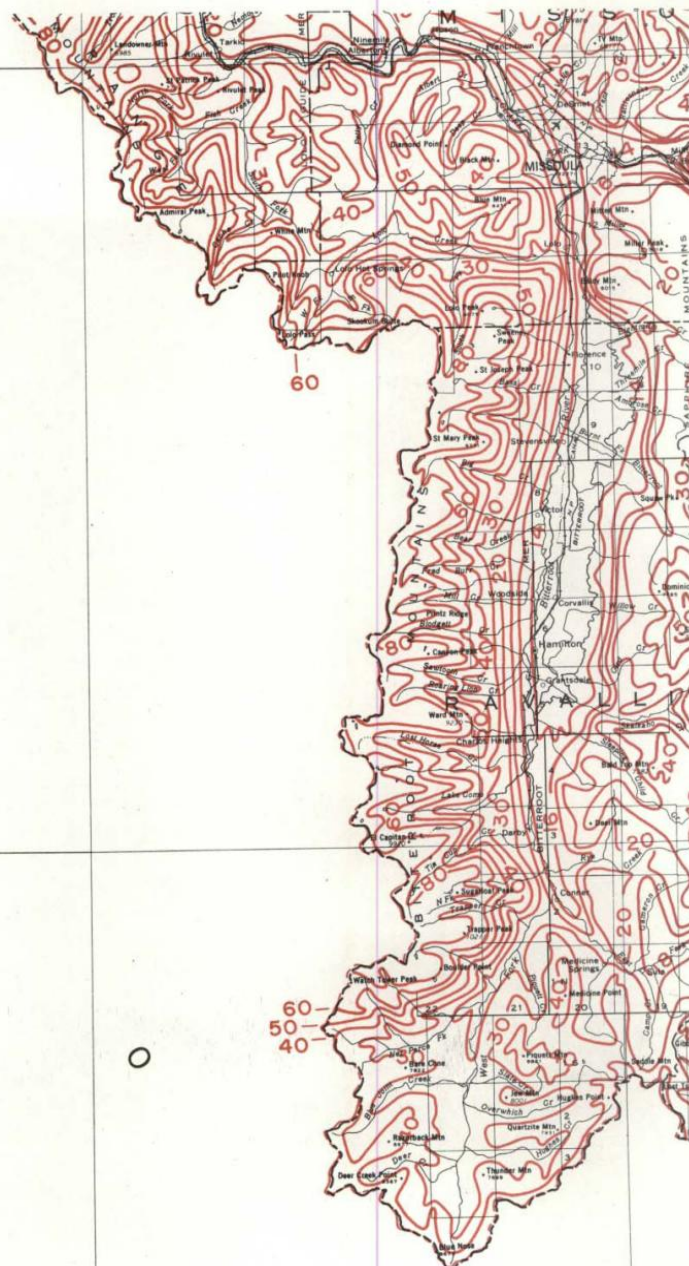
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF MONTANA

SHEET 7

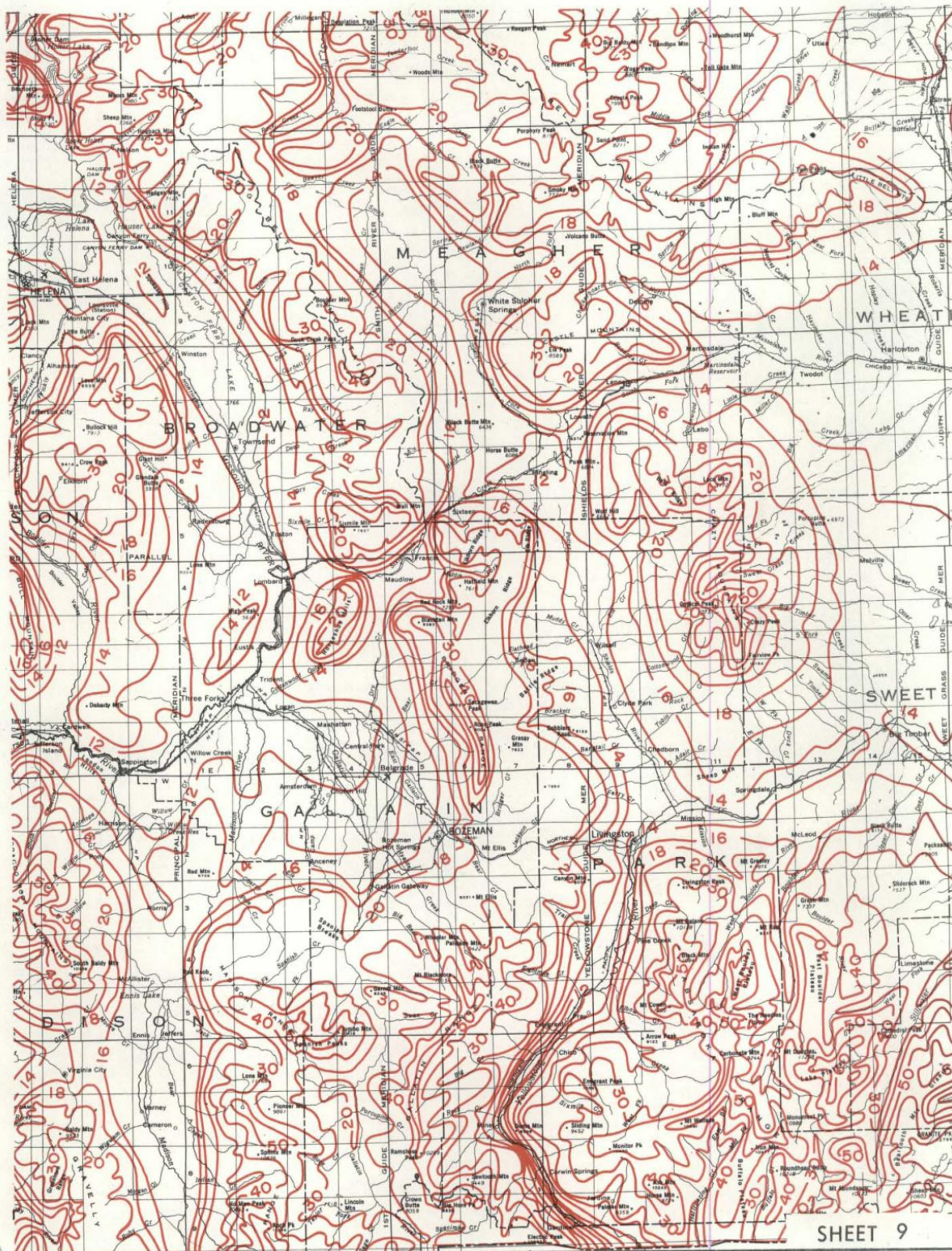
For In-Service use only until map based
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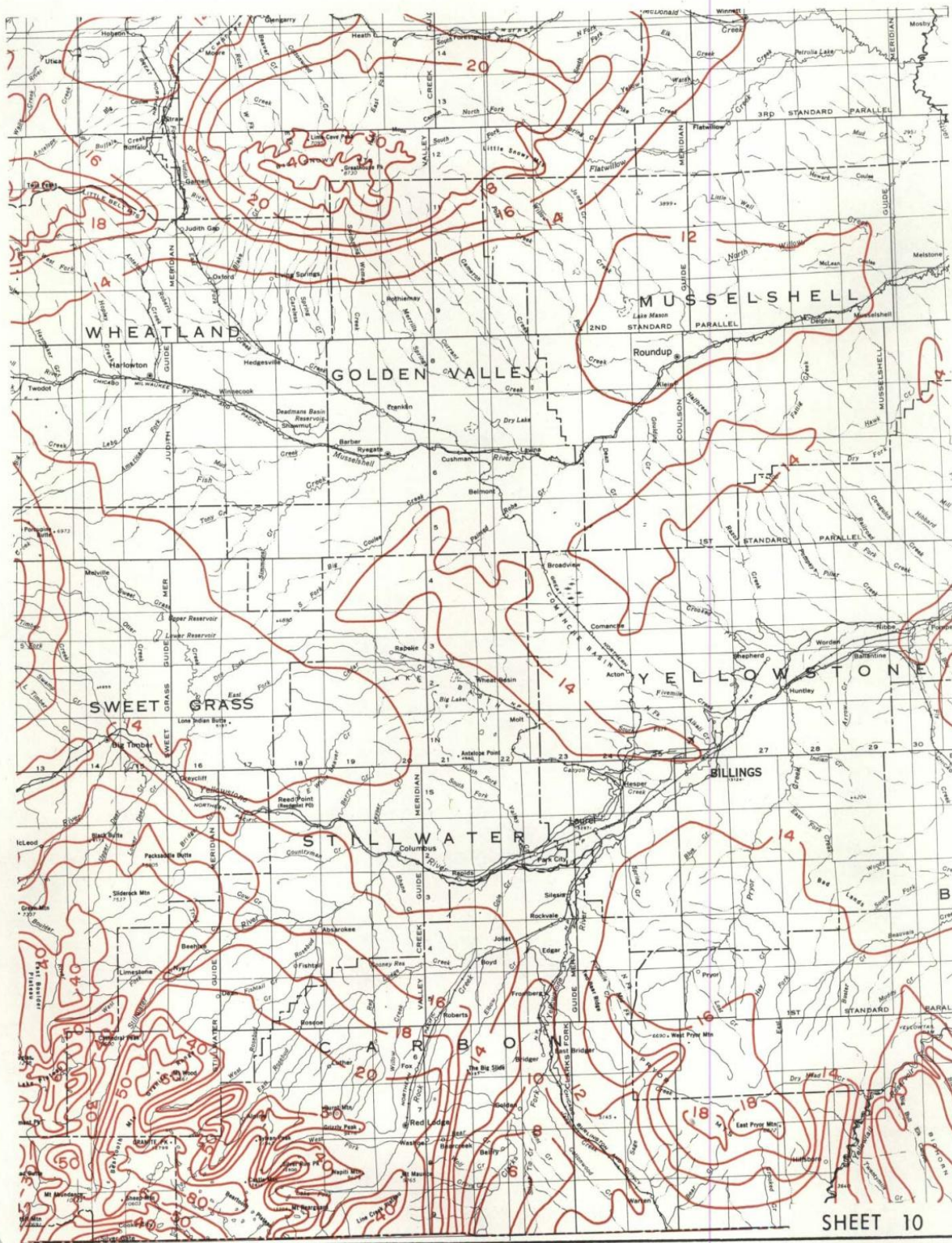
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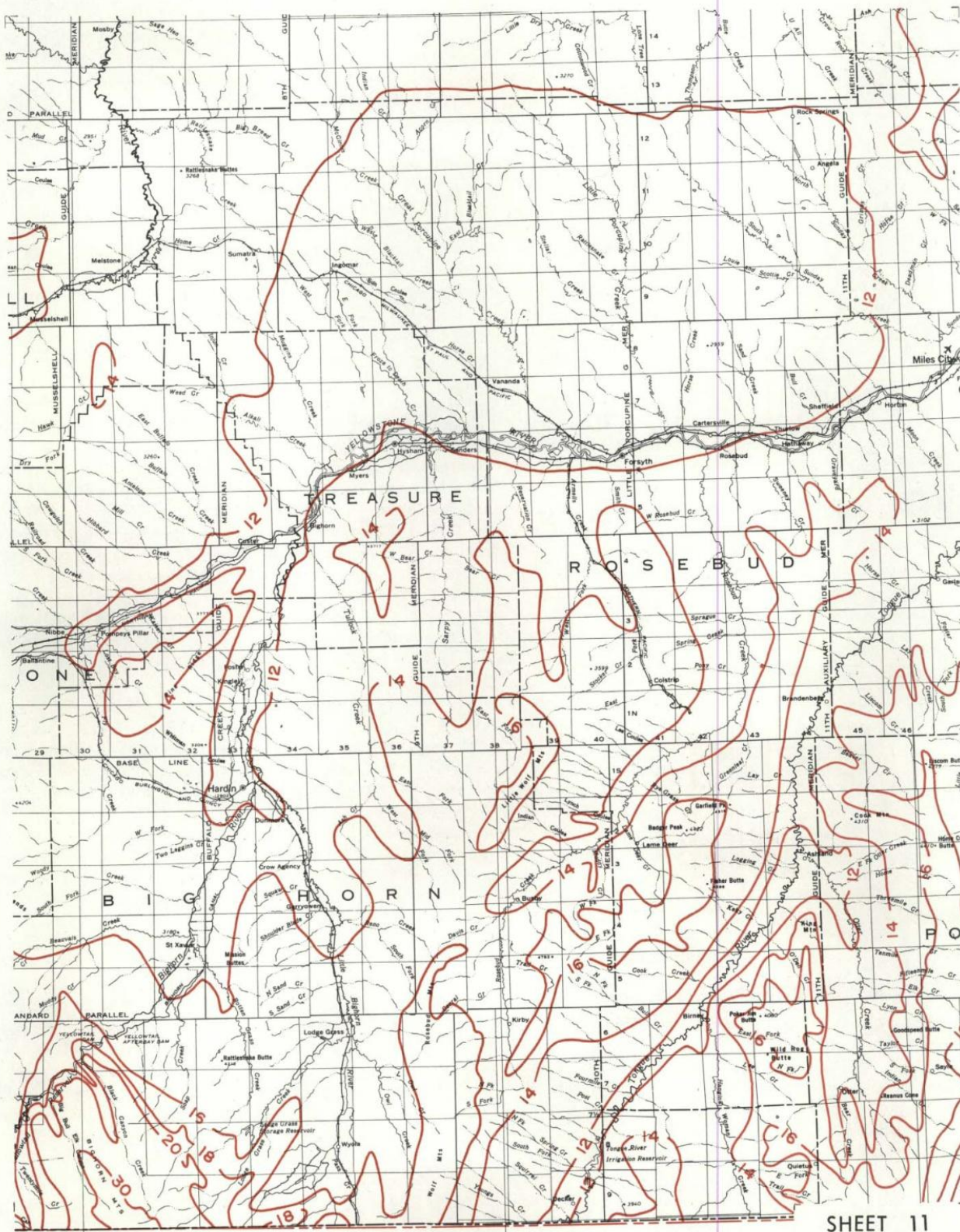
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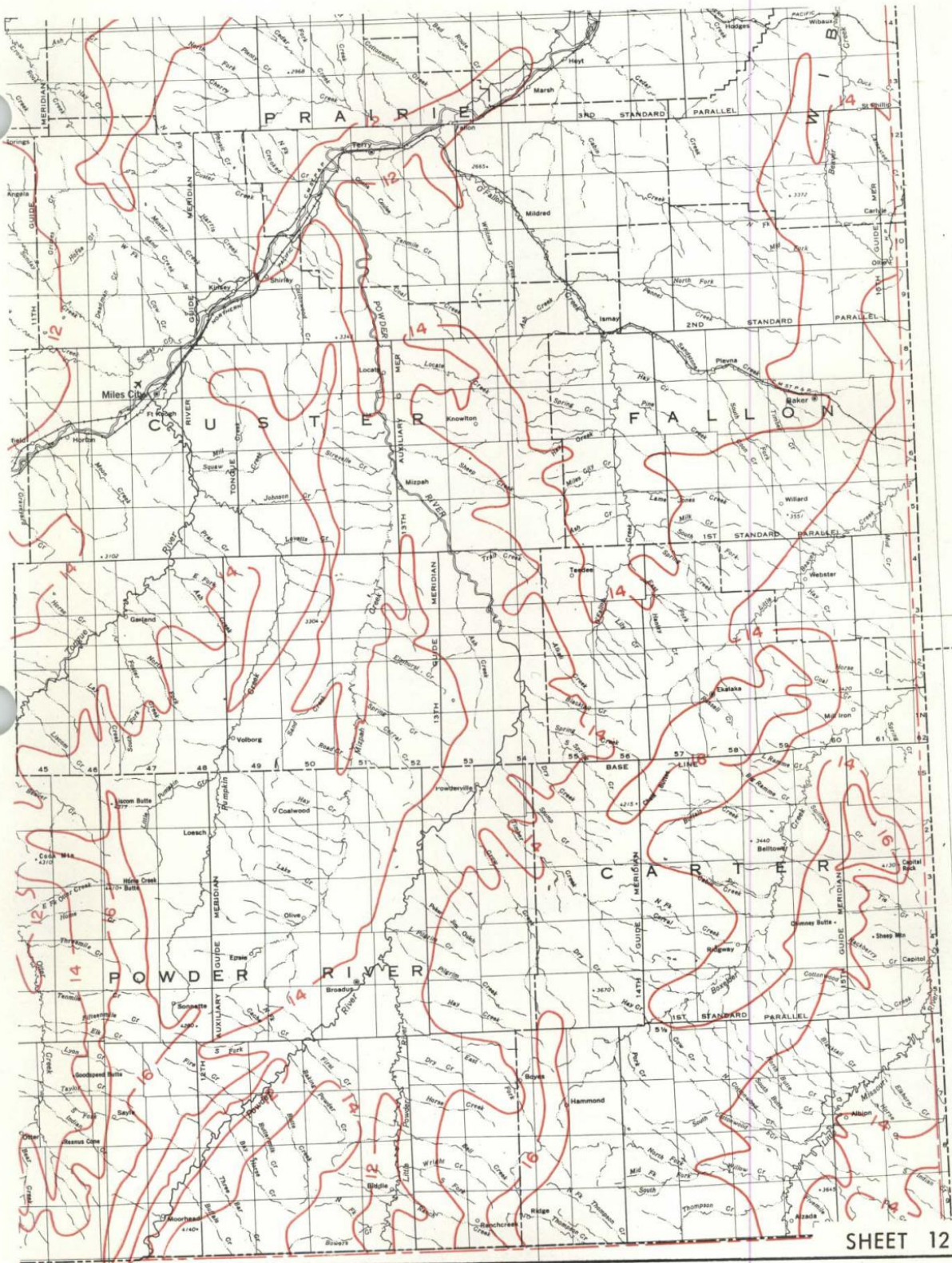
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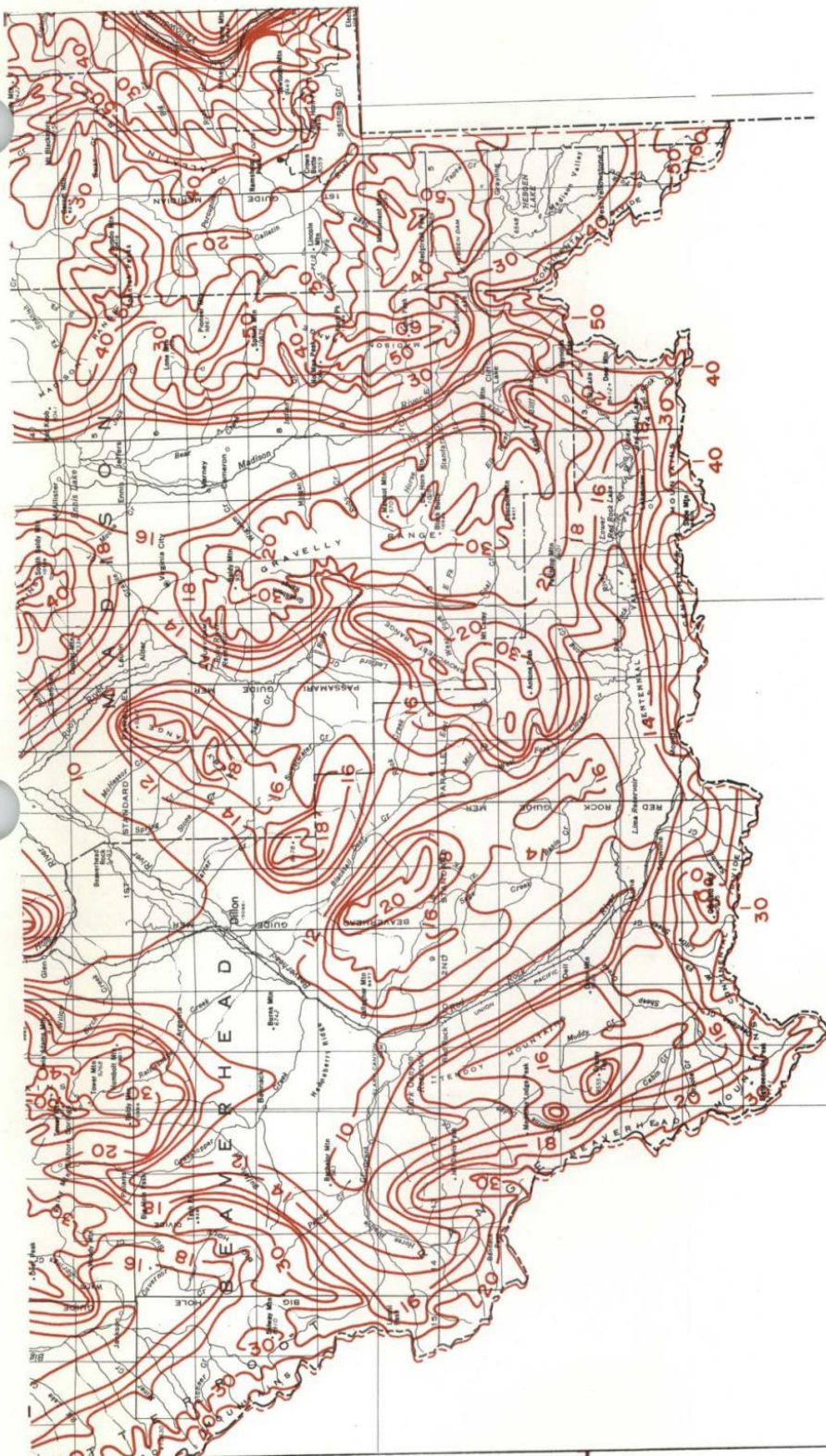
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 AVERAGE ANNUAL PRECIPITATION
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SHEET 13

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Soil Conservation Service 1953-67 Base

EXHIBIT X-11

LIST OF MUNICIPALITIES

The Order below can be found at:
<http://www.psc.state.mt.us/eDocs/eDocuments/getDocumentsInfo.asp?docketId=8199&do=false>

Service Date: September 11, 1987

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

* * * *

IN THE MATTER of the Pass Through	)	UTILITY DIVISION
of Fees Levied on Regulated Com-)	
panies for Funding the Department	)	DOCKET NO. 87.7.36
of Public Service Regulation	)	ORDER NO. 5282a

* * * * *

FINAL ORDER

* * * * *

Interim Order No. 5282 was issued in this Docket on August 4, 1987. No comments or requests for hearing having been received, the Commission adopts the following as its Final Order.

Section 69-1-402, MCA, provides for funding of the Department of Public Service Regulation by a fee on all regulated companies (as defined in § 69-1-401(2), MCA). On May 27, 1987, the Department of Revenue notified regulated companies of the tax rate which will be effective for the period beginning July 1, 1987. Section 69-1-403, MCA, requires that the Public Service Commission (Commission) "by separate order authorize each regulated company to fully recover in its rates and charges, on an annual basis, the fees levied...." This Order is being issued pursuant to that requirement.

Order No. 5218a, issued December 12, 1986, authorized

regulated companies to increase rates and charges for an annual period from August 29, 1986 through August 28, 1987. The currently authorized rate is .225 percent (.00225).

The applicable rate for the tax period beginning July 1, 1987, is .3 percent (.003). In order to permit full recovery of the PSC fees, it is the Commission's intention to permit all affected regulated companies to increase their revenue requirement as of August 29, 1987. Coordination with the existing annual recovery period will avoid multiple rate variations and administrative expense.

All regulated companies that pay the PSC fee may file tariffs reflecting a .3 percent rate increase. This means that companies currently collecting the .225 percent increase authorized in Order No. 5218a will be authorized to increase their rates by .075 percent (.00075).

The rate applicable to municipally owned regulated companies is .06 percent. § 69-1-403, MCA. This is also the rate authorized in Order No. 5218a for the preceding tax period. Municipal utilities currently collecting the tax, therefore, should require no tariff changes.

To provide flexibility, the Commission believes these increases should be permissive, not mandatory. Regulated companies may choose not to recover the fee in cases where the amount to be recovered would not justify submitting new tariffs. A regulated company may choose to defer implementing tariffs until a later date (e.g., to coincide with other tariff changes). It should be noted, however, that the revenue requirement may not be accumulated. Tariffs must be filed within 15 days of their proposed effective date.

EXHIBIT X-11 (cont.)

This approved revenue requirement will be effective until August 28, 1988. The Commission believes that a 12 month effective period will insure that regulated companies will recover all fees paid as required by law.

It is the Commission's intention that all regulated services of a regulated company absorb the rate increase proportionately to that service's contribution to the total gross operating revenue generated by the regulated activities within this

state. As limited exceptions to this general approach, however, the Commission believes that ceilings in "flexible band" tariffs need not be exceeded and that special market-based rates need not be increased.

CONCLUSIONS OF LAW

1. Pursuant to 69-3-102 and 69-14-111, MCA, the Montana Public Service Commission has jurisdiction over regulated companies as defined by § 69-1-401, MCA.

2. The Public Service Commission is required by § 69-1-403, MCA, to allow immediate recovery of the regulated utility fee by each affected company in its rates and charges on an annual basis.

3. The increased revenue requirement approved herein is a reasonable means of complying with § 69-1-401 et seq., MCA.

EXHIBIT X-11 (cont.)

ORDER

Regulated companies as defined in § 69-1-401, MCA, are authorized to file tariffs reflecting increased rates and charges as of August 29, 1987, consistent with the Findings of Fact contained in this Order. This authorization is permissive, not mandatory, and effective dates may, at the companies' discretion, be after August 29, 1987.

Tariffs must be filed within fifteen (15) days of their proposed effective date.

Done and Dated this 8th day of September, 1987 by a vote of 5 - 0.

EXHIBIT X-11 (cont.)

BY ORDER OF THE MONTANA PUBLIC SERVICE COMMISSION

CLYDE JARVIS, Chairman

JOHN B. DRISCOLL, Commissioner

HOWARD L. ELLIS, Commissioner

TOM MONAHAN, Commissioner

DANNY OBERG, Commissioner

ATTEST:

Ann Purcell
Acting Secretary

(SEAL)

NOTE: Any interested party may request that the Commission reconsider this decision. A motion to reconsider must be filed within ten (10) days. See 38.2.4806, ARM.

EXHIBIT X-11 (cont.)

2009 List of Incorporated Municipalities

CITY	ADDRESS	ZIPCODE	COUNTY	TELEPHONE
Alberton	P. O. Box 115	59820	Mineral	722-3404
Anaconda	800 South Main	59711	Anaconda-Deer Lodge	563-4000
Bainville	P. O. Box 92	59212	Roosevelt	769-2621
Baker	P. O. Box 1512	59313	Fallon	778-2692
Bearcreek	P. O. Box 1082	59007	Carbon	446-1221
Belgrade	91 E. Central Avenue	59714	Gallatin	388-3760
Belt	P. O. Box 453	59412	Cascade	277-3621
Big Sandy	P. O. Box 381	59520	Chouteau	378-2350
Big Timber	P. O. Box 416	59011	Sweet Grass	932-5611
Billings	P. O. Box 1178	59103	Yellowstone	657-8433
Boulder	P. O. Box 68	59632	Jefferson	225-3381
Bozeman	P. O. Box 1230	59771-1230	Gallatin	582-2300
Bridger	P. O. Box 368	59014	Carbon	662-3677
Broadus	P. O. Box 659	59317	Powder River	436-2409
Broadview	P. O. Box 115	59015	Yellowstone	667-2173
Brockton	P. O. Box 228	59213	Roosevelt	786-3231
Browning	P. O. Box 469	59417	Glacier	338-2344
Butte	155 W. Granite	59701	Butte-Silver Bow	497-6200
Cascade	P. O. Box 314	59421	Cascade	468-2808
Chester	P. O. Box 644	59522	Liberty	759-5635
Chinook	P. O. Box 1177	59523	Blaine	357-3160
Choteau	P. O. Box 619	59422	Teton	466-2510
Circle	P. O. Box 140	59215	McCone	485-2524
Clyde Park	P. O. Box 177	59018	Park	686-4719
Colstrip	P.O. Box 1902	59323	Rosebud	748-2300
Columbia Falls	130 6th Street W.	59912	Flathead	892-4391
Columbus	P.O. Box 549	59019	Stillwater	322-5313
Conrad	411 1/2 S. Main	59425	Pondera	271-3623
Culbertson	P.O. Box 351	59218	Roosevelt	787-5271
Cut Bank	221 W. Main Street	59427	Glacier	873-5526
Darby	P.O. Box 37	59829	Ravalli	821-3753
Deer Lodge	300 Main Street	59722-1098	Powell	846-2238
Denton	P.O. Box 986	59430	Fergus	567-2571
Dillon	125 N. Idaho Street	59725	Beaverhead	683-4245
Dodson	P.O. Box 98	59524	Phillips	383-4443
Drummond	P.O. Box 195	59832	Granite	288-3231
Dutton	P.O. Box 156	59433	Teton	476-3311
East Helena	P.O. Box 1170	59635	Lewis & Clark	227-5321
Ekalaka	P.O. Box 338	59324	Carter	775-8731
Ennis	P.O. Box 147	59729	Madison	682-4287
Eureka	P.O. Box 313	59917	Lincoln	297-2123
Fairfield	P.O. Box 8	59436	Teton	467-2510
Fairview	P.O. Box 426	59221	Richland	742-5616
Flaxville	P.O. Box 62	59222	Daniels	474-2203
Forsyth	P.O. Box 226	59327-0226	Rosebud	346-2521
Fort Benton	P.O. Box 8	59442	Chouteau	622-5494
Fort Peck	P.O. Box 310	59223	Valley	526-3220
Froid	P.O. Box 308	59226	Roosevelt	963-2203
Fromberg	P.O. Box 236	59029	Carbon	668-7383
Geraldine	P.O. Box 211	59446	Chouteau	737-4361
Glasgow	319 Third Street South	59230	Valley	228-2476
Glendive	300 S. Merrill Avenue	59330	Dawson	377-3318
Grass Range	P.O. Box 807	59032	Fergus	428-2174
Great Falls	P.O. Box 5021	59403	Cascade	771-1180

Exhibit X-11 (cont.)

Hamilton	223 South Second St.	59840	Ravalli	363-2101
Hardin	406 N. Cheyenne Avenue	59034	Big Horn	665-9292
Harlem	P.O. Box 579	59526	Blaine	353-2361
Harlowton	P.O. Box 292	59036	Wheatland	632-5523
Havre	P.O. Box 231	59501	Hill	265-6719
Helena	316 N. Park Avenue	59623	Lewis & Clark	447-8410
Hingham	P.O. Box 69	59528	Hill	397-3146
Hobson	P.O. Box 367	59452	Judith Basin	423-5543
Hot Springs	P.O. Box 669	59845	Sanders	741-2353
Hysham	P.O. Box 228	59038	Treasure	342-5544
Ismay	P.O. Box 104	59336	Custer	772-5695
Joliet	P.O. Box 210	59041	Carbon	962-3567
Jordan	P.O. Box 484	59337	Garfield	557-2692
Judith Gap	P.O. Box 157	59453	Wheatland	473-2249
Kalispell	P.O. Box 1997	59903	Flathead	758-7701
Kevin	P.O. Box 137	59454	Toole	337-2141
Laurel	P.O. Box 10	59044	Yellowstone	628-7431
Lavina	P.O. Box 231	59046	Golden Valley	636-2025
Lewistown	305 W. Watson Street	59457	Fergus	535-1760
Libby	P.O. Box 1428	59923	Lincoln	293-2731
Lima	P.O. Box 184	59739	Beaverhead	276-3521
Livingston	414 E. Callender	59047	Park	222-2005
Lodge Grass	P.O. Box 255	59050	Big Horn	639-2362
Malta	P.O. Box 1300	59538	Phillips	654-1251
Manhattan	P.O. Box 96	59741	Gallatin	284-3235
Medicine Lake	P.O. Box 5	59247	Sheridan	789-2422
Melstone	P.O. Box 237	59054	Musselshell	358-2301
Miles City	P.O. Box 910	59301	Custer	234-3462
Missoula	435 Ryman Street	59802	Missoula	552-6000
Moore	P.O. Box 98	59464	Fergus	374-2480
Nashua	P.O. Box 47	59248	Valley	746-3461
Neihart	P.O. Box 36	59465	Cascade	236-5301
Opheim	P.O. Box 14	59250	Valley	762-3355
Outlook	P.O. Box 218	59252	Sheridan	895-2226
Philipsburg	P.O. Box 339	59858-0339	Granite	859-3821
Pinesdale	P.O. Box 410228	59841	Ravalli	961-8300
Plains	P.O. Box 567	59859	Sanders	826-3411
Plentywood	205 W. First Avenue	59254	Sheridan	765-1700
Plevna	P.O. Box 27	59344	Fallon	772-5837
Polson	106 1st Street East	59860	Lake	883-8200
Poplar	P.O. Box 630	59255	Roosevelt	768-3483
Red Lodge	P.O. Box 9	59068	Carbon	446-1606
Rexford	P.O. Box 100	59930	Lincoln	297-2439
Richey	P.O. Box 205	59259	Dawson	773-5634
Ronan	207 Main Street SW	59864-2706	Lake	676-4231
Roundup	P.O. Box 660	59072	Musselshell	323-2804
Ryegate	P.O. Box 163	59074	Golden Valley	568-2320
Saco	P.O. Box 330	59261	Phillips	527-3312
Scobey	P.O. Box 68	59263	Daniels	487-5581
Shelby	112 1st Street South	59474	Toole	434-5222
Sheridan	P.O. Box 78	59749	Madison	842-5431
Sidney	115 2nd Street SE	59270	Richland	433-2809
St. Ignatius	P.O. Box 103	59865	Lake	745-3791
Stanford	P.O. Box 123	59479	Judith Basin	566-2251
Stevensville	P.O. Box 30	59870	Ravalli	777-5271
Sunburst	P.O. Box 245	59482	Toole	937-2141
Superior	P.O. Box 729	59872	Mineral	822-4672
Terry	P.O. Box 36	59349	Prairie	635-5411
Thompson Falls	P.O. Box 99	59873	Sanders	827-3557

Exhibit X-11 (cont.)

Three Forks	P.O. Box 187	59752	Gallatin	285-3431
Townsend	110 Broadway	59644	Broadwater	266-3911
Troy	P.O. Box 823	59935	Lincoln	295-4151
Twin Bridges	P.O. Box 307	59754	Madison	684-5243
Valier	P.O. Box 512	59486	Pondera	279-3721
Virginia City	P.O. Box 35	59755	Madison	843-5321
Walkerville	P.O. Box 7707	59701	Butte-Silver Bow	491-1997
West Yellowstone	P.O. Box 1570	59758	Gallatin	646-7795
Westby	P.O. Box 186	59275	Sheridan	385-2445
White Sulphur Springs	P.O. Box 442	59645	Meagher	547-3911
Whitefish	P.O. Box 158	59937	Flathead	863-2400
Whitehall	P.O. Box 529	59759	Jefferson	287-3972
Wibaux	P.O. Box 219	59353	Wibaux	796-2412
Winifred	P.O. Box 181	59489	Fergus	462-5425
Winnett	P.O. Box 225	59087	Petroleum	429-5451
Wolf Point	201 4th Avenue South	59201	Roosevelt	653-1852

Exhibit X-11 (cont.)

POPULATION OF INCORPORATED PLACES* (CITIES/TOWNS) IN MONTANA, 1890 TO 2000

	COUNTY**	2000	1990	1980	1970	1960	1950	1940	1930	1920	1910	1900	1890
PLACE (City/Town)	2000	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS
MONTANA		902,195	799,065	786,690	694,409	674,767	591,024	559,456	537,606	548,889	376,053	243,329	142,924
ALBERTON	MINERAL	374	354	368	363	356	326	283	276	...	...	...	...
ANACONDA-DEER LODGE***	DEER LODGE	9,417	10,356	12,518	9,771	12,054	11,254	11,004	12,494	11,668	10,134	9,453	3,975
ANTELOPE	SHERIDAN	...	...	...	...	...	...	...	142	285	...	...	...
BAINVILLE	ROOSEVELT	153	165	245	217	285	356	403	471	396	...	...	...
BAKER	FALLON	1,695	1,818	2,354	2,584	2,365	1,772	1,304	1,212	1,067	...	...	...
BEARCREEK	CARBON	83	37	61	31	61	162	324	472	744	302	...	...
BELGRADE	GALLATIN	5,728	3,422	2,336	1,307	1,057	663	618	533	499	561	...	...
BELT	CASCADE	633	571	825	656	757	702	744	810	967	1,158	...	...
BIG SANDY	CHOUTEAU	703	740	835	827	954	743	596	633	589	...	...	...
BIG TIMBER	SWEET GRASS	1,650	1,557	1,690	1,592	1,660	1,679	1,533	1,224	1,282	1,022	...	...
BILLINGS	YELLOWSTONE	89,847	81,125	66,842	61,581	52,851	31,834	23,261	16,380	15,100	10,031	3,221	836
BOULDER	JEFFERSON	1,300	1,316	1,441	1,342	1,394	1,017	510	926	682	...	...	...
BOZEMAN	GALLATIN	27,509	22,660	21,645	18,670	13,361	11,325	8,665	6,855	6,183	5,107	3,419	2,143
BRIDGER	CARBON	745	692	724	717	824	854	783	567	679	514	...	...
BROADUS	POWDER RIVER	451	572	712	799	628	517	...	...	...	...	...	...
BROADVIEW	YELLOWSTONE	150	133	120	123	160	164	140	260	191	...	...	...
BROCKTON	ROOSEVELT	245	365	374	401	367	...	...	...	...	...	...	...
BROWNING	GLACIER	1,065	1,170	1,226	1,700	2,011	1,691	1,825	1,172	986	...	...	...
BUTTE-SILVER BOW***	SILVER BOW	33,892	33,336	37,205	23,368	27,877	33,251	37,081	39,532	41,611	39,165	30,470	10,723
	CASCADE	819	729	773	714	604	447	419	520	465	...	...	...
CHESTER	LIBERTY	871	942	963	936	1,158	733	548	387	402	...	...	...
CHINOOK	BLAINE	1,386	1,512	1,660	1,813	2,326	2,307	2,051	1,320	1,217	780	...	...
CHOTEAU	TETON	1,781	1,741	1,798	1,586	1,966	1,618	1,181	926	1,043	...	...	...
CIRCLE	MCCONE	644	805	931	964	1,117	856	685	519	...	...	...	...
CLYDE PARK	PARK	310	282	283	244	253	280	216	302	352	...	...	...
COLSTRIP****	ROSEBUD	2,346	...	...	...	...	...	...	...	...	...	...	...
COLUMBIA FALLS	FLATHEAD	3,645	2,921	3,112	2,652	2,132	1,232	637	637	611	601	...	...
COLUMBUS	STILLWATER	1,748	1,573	1,439	1,173	1,281	1,097	962	834	987	521	...	...
CONRAD	PONDERA	2,753	2,891	3,074	2,770	2,665	1,865	1,471	1,499	988	888	...	...
CULBERTSON	ROOSEVELT	716	796	887	821	919	779	585	536	547	528	...	...
CUT BANK	GLACIER	3,105	3,329	3,688	4,004	4,539	3,721	2,509	845	1,181	...	...	...
DARBY	RAVALLI	710	625	581	538	398	415	481	285	325	...	...	...
DEER LODGE	POWELL	3,421	3,378	4,023	4,306	4,681	3,779	3,278	3,510	3,780	2,570	1,324	1,463
DENTON	FERGUS	301	350	356	398	410	435	406	345	431	...	...	...
DILLON	BEAVERHEAD	3,752	4,001	3,976	4,548	3,690	3,268	3,014	2,422	2,701	1,835	1,530	1,012
DODSON	PHILLIPS	122	137	158	196	313	330	397	249	365	...	...	...
DRUMMOND	GRANITE	318	264	414	494	577	531	...	...	...	...	...	...
DUTTON	TETON	389	392	359	415	504	431	447	...	...	...	...	...
EAST HELENA	LEWIS & CLARK	1,642	1,538	1,647	1,651	1,490	1,216	1,143	1,039	...	...	...	...
EKALAKA	CARTER	410	439	620	663	738	904	719	475	433	...	...	...
ENNIS	MADISON	840	773	660	501	525	...	...	...	...	...	...	...
EUREKA	LINCOLN	1,017	1,043	1,119	1,195	1,229	929	912	860	1,082	603	...	...
FAIRFIELD	TETON	659	660	650	638	752	693	...	...	...	...	...	...
FAIRVIEW	RICHLAND	709	869	1,366	956	1,006	942	901	576	513	...	...	...
FLAXVILLE	DANIELS	87	88	142	185	262	...	...	...	...	...	...	...
FORSYTH	ROSEBUD	1,944	2,178	2,553	1,873	2,032	1,906	1,696	1,591	1,838	1,398	...	...
FORT BENTON	CHOUTEAU	1,594	1,660	1,693	1,863	1,887	1,522	1,227	1,109	1,065	1,004	1,024	624
FORT PECK	VALLEY	240	226	...	...	...	...	...	...	...	...	...	...
FROID	ROOSEVELT	195	195	323	330	418	555	441	434	410	...	...	...

Exhibit X-11 (cont.)

	COUNTY**	2000	1990	1980	1970	1960	1950	1940	1930	1920	1910	1900	1890
PLACE (City/Town)	2000	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS
FROMBERG	CARBON	486	370	469	364	367	442	533	446	520	...	...	...
GERALDINE	CHOUTEAU	284	299	305	370	364	374	262	279	354	...	...	...
GEYSER	CASCADE	...	...	...	...	...	...	...	230	...	...	...	...
GLASGOW	VALLEY	3,253	3,572	4,455	4,700	6,398	3,821	3,799	2,216	2,059	1,158	...	...
GLENDAVE	DAWSON	4,729	4,802	5,978	6,305	7,058	5,254	4,524	4,629	3,816	2,428	...	...
GRASS RANGE	FERGUS	149	159	139	181	222	234	206	212	262	...	...	...
GREAT FALLS	CASCADE	56,690	55,125	56,884	60,091	55,244	39,214	29,928	28,822	24,121	13,948	14,930	3,979
HAMILTON	RAVALLI	3,705	2,737	2,661	2,499	2,475	2,678	2,332	1,839	1,700	2,240	1,257	...
HARDIN	BIG HORN	3,384	2,940	3,300	2,733	2,789	2,306	1,886	1,169	1,312	...	...	...
HARLEM	BLAINE	848	882	1,023	1,094	1,267	1,107	1,166	708	721	383	...	...
HARLOWTON	WHEATLAND	1,062	1,049	1,181	1,375	1,734	1,733	1,547	1,473	1,856	770	...	...
HAVRE	HILL	9,621	10,201	10,891	10,558	10,740	8,086	6,427	6,372	5,429	3,624	1,033	...
HELENA	LEWIS & CLARK	25,780	24,609	23,938	22,730	20,227	17,581	15,056	11,803	12,037	12,515	10,770	13,834
HINGHAM	HILL	157	181	186	262	254	214	205	251	154	...	...	...
HOBSON	JUDITH BASIN	244	226	261	192	207	205	239	240	...	...	...	...
HOT SPRINGS	SANDERS	531	411	601	664	585	733	663	447	...	...	...	...
HYSHAM	TREASURE	330	361	449	373	494	410	392	258	360	...	...	...
ISMAY	CUSTER	26	19	31	40	59	182	176	277	344	...	...	...
JOLIET	CARBON	575	522	580	412	452	410	476	359	440	389	...	...
JORDAN	GARFIELD	364	494	485	529	557	...	...	...	...	...	...	...
JUDITH GAP	WHEATLAND	164	133	213	160	185	175	212	288	522	...	...	...
KALISPELL	FLATHEAD	14,223	11,917	10,689	10,526	10,151	9,737	8,245	6,094	5,147	5,549	2,526	...
KEVIN	TOOLE	178	185	208	250	375	351	360	324	...	...	...	...
LAMBERT	RICHLAND	...	...	...	...	...	...	...	...	287	...	...	...
LAUREL	YELLOWSTONE	6,255	5,686	5,498	4,454	4,601	3,663	2,754	2,558	2,239	806	...	...
LAVINA	GOLDEN VALLEY	209	151	164	169	212	195	199	148	...	...	...	...
LEWISTOWN	FERGUS	5,813	6,097	7,104	6,437	7,408	6,573	5,874	5,358	6,120	2,992	1,096	...
LIBBY	LINCOLN	2,626	2,532	2,748	3,286	2,828	2,401	1,837	1,752	1,522	630	...	...
LIMA	BEAVERHEAD	242	265	272	351	397	483	554	459	476	...	...	...
LIVINGSTON	PARK	6,851	6,701	6,994	6,883	8,229	7,683	6,642	6,391	6,311	5,359	2,778	2,850
LODGE GRASS	BIG HORN	510	517	499	806	687	536	839	373	...	...	...	...
MALTA	PHILLIPS	2,120	2,340	2,367	2,195	2,239	2,095	2,215	1,342	1,427	433	...	...
MANHATTAN	GALLATIN	1,396	1,034	988	816	889	716	646	501	591	...	...	...
MEDICINE LAKE	SHERIDAN	269	357	408	393	452	454	396	384	292	...	...	...
MELSTONE	MUSSELSHELL	136	166	238	227	266	195	203	215	477	...	...	...
MILES CITY	CUSTER	8,487	8,461	9,602	9,023	9,665	9,243	7,313	7,175	7,937	4,697	1,938	956
MISSOULA	MISSOULA	57,053	42,918	33,351	29,497	27,090	22,485	18,449	14,657	12,668	12,869	4,366	3,426
MOORE	FERGUS	186	211	229	219	216	224	241	288	355	573	...	...
NASHUA	VALLEY	325	375	495	513	796	691	943	351	272	...	...	...
NEIHART	CASCADE	91	53	91	109	150	289	466	169	749	268	833	...
OPHEIM	VALLEY	111	145	210	306	457	383	344	424	...	...	...	...
OUTLOOK	SHERIDAN	82	109	122	153	226	235	208	302	295	...	...	...
PHILIPSBURG	GRANITE	914	925	1,138	1,128	1,107	1,048	1,304	1,300	1,724	1,109	995	1,058
PINESDALE	RAVALLI	742	670	...	...	...	...	...	...	...	...	...	...
PLAINS	SANDERS	1,126	992	1,116	1,046	769	714	624	522	452	481	...	...
PLENTYWOOD	SHERIDAN	2,061	2,136	2,476	2,381	2,121	1,862	1,574	1,226	888	...	...	...
PLEVNA	FALLON	138	140	191	189	263	247	291	258	241	...	...	...
POLSON	LAKE	4,041	3,291	2,798	2,464	2,314	2,280	2,156	1,455	1,132	...	...	...
PONY	MADISON	...	...	...	...	...	...	...	...	242	369	...	...
POPLAR	ROOSEVELT	911	881	995	1,389	1,565	1,169	1,442	1,046	1,152	...	...	...
RED LODGE	CARBON	2,177	1,958	1,896	1,844	2,278	2,730	2,950	3,026	4,515	4,860	2,152	624
REXFORD	LINCOLN	151	132	130	243	...	...	...	...	...	...	...	...
RICHEY	DAWSON	189	259	417	389	480	595	...	362	...	...	...	...

Exhibit X-11 (cont.)

	COUNTY**	2000	1990	1980	1970	1960	1950	1940	1930	1920	1910	1900	1890
PLACE (City/Town)	2000	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS	CENSUS
RONAN	LAKE	1,812	1,547	1,530	1,347	1,334	1,251	1,032	537	600	...	...	...
ROUNDUP	MUSSELSHELL	1,931	1,808	2,119	2,116	2,842	2,856	2,644	2,577	2,434	1,513	...	...
RYEGATE	GOLDEN VALLEY	268	260	273	261	314	339	348	292	405	...	...	...
SACO	PHILLIPS	224	261	252	356	490	539	452	506	425	...	...	...
SAINT IGNATIUS	LAKE	788	778	877	925	940	781	768	...	...	...	...	...
SCOBAY	DANIELS	1,082	1,154	1,382	1,486	1,726	1,628	1,311	1,259	1,170	...	...	...
SHELBY	TOOLE	3,216	2,763	3,142	3,111	4,017	3,058	2,538	2,004	537	...	...	...
SHERIDAN	MADISON	659	652	646	636	539	572	597	521	538	399	581	207
SIDNEY	RICHLAND	4,774	5,217	5,726	4,543	4,564	3,987	2,978	2,010	1,400	345	...	...
STANFORD	JUDITH BASIN	454	529	595	505	615	542	529	509	300	...	...	...
STEVENSVILLE	RAVALLI	1,553	1,221	1,207	829	784	772	703	692	744	796	346	...
SUNBURST	TOOLE	415	437	476	604	882	845	709	486	...	...	...	...
SUPERIOR	MINERAL	893	881	1,054	993	1,242	626	...	...	...	...	...	...
SWEETGRASS	TOOLE	...	...	...	...	...	...	...	356	...	...	...	...
TERRY	PRAIRIE	611	659	929	870	1,140	1,191	1,012	779	794	...	...	...
THOMPSON FALLS	SANDERS	1,321	1,319	1,478	1,356	1,274	851	736	468	508	325	...	...
THREE FORKS	GALLATIN	1,728	1,203	1,247	1,188	1,161	1,114	876	884	1,071	674	...	...
TOWNSEND	BROADWATER	1,867	1,635	1,587	1,371	1,528	1,316	1,309	735	897	759	446	245
TROY	LINCOLN	957	953	1,088	1,046	855	770	796	498	763	...	...	...
TWIN BRIDGES	MADISON	400	374	437	613	509	497	534	671	755	491	...	...
VALIER	PONDERA	498	519	640	651	724	710	641	575	613	...	...	...
VICTOR	RAVALLI	...	...	...	...	...	...	...	...	...	374	136	...
VIRGINIA CITY	MADISON	130	142	192	149	194	323	380	242	342	467	568	675
WALKERVILLE	SILVER BOW	714	605	887	1,097	1,453	1,631	1,880	2,052	2,391	2,491	2,621	1,743
WEST YELLOWSTONE	GALLATIN	1,177	913	735	756	...	...	...	...	...	...	...	...
WESTBY	SHERIDAN	172	253	291	287	309	396	369	287	253	...	...	...
WHITE SULPHUR SPRINGS	MEAGHER	984	963	1,302	1,200	1,519	1,025	858	575	574	417	446	640
WHITEFISH	FLATHEAD	5,032	4,368	3,703	3,349	2,965	3,268	2,602	2,803	2,867	1,479	...	...
WHITEHALL	JEFFERSON	1,044	1,067	1,030	1,035	898	929	818	553	629	417	...	...
WIBAUX	WIBAUX	567	628	782	644	766	739	625	619	611	487	...	...
WINIFRED	FERGUS	156	150	155	190	220	217	300	251	262	...	...	...
WINNETT	PETROLEUM	185	188	207	271	360	407	399	408	316	...	...	...
WOLF POINT	ROOSEVELT	2,663	2,880	3,074	3,095	3,585	2,557	1,960	1,539	2,098	...	...	...

POPULATION FIGURES HAVE BEEN REVISED WHENEVER APPLICABLE TO INDICATE CORRECTED TOTALS. THE COUNTS REFLECT BOTH GROWTH AND ANNEXATION WHICH OCCURRED DURING THE PREVIOUS INTERCENSAL PERIOD.

* = PLACES WHICH WERE INCORPORATED AS CITIES AND TOWNS WHEN THE DECENNIAL CENSUSES WERE CONDUCTED. INCORPORATED PLACES ARE THOSE WHICH ARE LEGALLY IN EXISTENCE AS CITIES OR TOWNS UNDER THE LAWS OF THE STATE OF MONTANA.

** = COUNTY STRUCTURE IN 2000. NO ATTEMPT HAS BEEN MADE HERE TO DOCUMENT THE EVOLUTION OF COUNTIES IN MONTANA OR THE EARLY PLACEMENT OF CITIES AND TOWNS IN THE COUNTIES.

*** = ANACONDA-DEER LODGE AND BUTTE-SILVER BOW (EXCLUDING WALKERVILLE) CONSOLIDATED THEIR CITY AND COUNTY GOVERNMENTS IN MAY 1977. THE INCORPORATED PLACES WERE ANACONDA AND BUTTE, RESPECTIVELY, BEFORE THE CONSOLIDATIONS WERE MADE. THE 1980 AND 1990 CENSUSES REFLECT THE CONSOLIDATED POPULATIONS.

**** = COLSTRIP WAS INCORPORATED IN 1998

... = NOT AN INCORPORATED PLACE WHEN THE DECENNIAL CENSUS OF POPULATION WAS CONDUCTED.

SOURCES: U.S. BUREAU OF THE CENSUS. DECENNIAL CENSUSES OF POPULATION (TITLE VARIES PER CENSUS), 1890-2000.
 PROCESSED BY THE CENSUS AND ECONOMIC INFORMATION CENTER, MONTANA DEPARTMENT OF COMMERCE, MARCH 21, 2001

Exhibit X-12

Salvato, J.A., PE, Environmental Engineering and Sanitation, 3rd Edition, 1982, Table 3-12

Table 3-12 Guides for Water Use in Design

Type of Establishment	gpd ^a
<i>Residential</i>	
Dwellings and apartments (per bedroom)	150
Rural	48
Suburban	80
Urban	170
<i>Temporary quarters</i>	
Boarding houses	65
Additional (or nonresident boarders)	10
Campsites (per site), recreation vehicle with individual connection	100
Campsites, recreation vehicle with individual connection	40 to 50
Camps without WCs, baths, or showers	5
Camps with WCs but without baths or showers	25
Camps with WCs and bathhouses	35 to 50
Cottages, seasonal with private bath	50
Day camps	15 to 20
Hotels	65 to 75
Mobile home parks (per unit)	125 to 150
Motels	50 to 75
<i>Public establishments</i>	
Restaurants (toilets and kitchens)	7 to 10
Without public toilet facilities	2½ to 3
With bar or cocktail lounge, additional	2
Schools, boarding	75 to 100
Day with cafeteria, gymnasium, and showers	25
Day with cafeteria, but without gymnasium and shower	15
Hospitals (per bed)	250 to 500
Institutions other than hospitals (per bed)	75 to 125
Places of public assembly	3 to 10
Turnpike rest areas	5
Turnpike service areas (per 10 percent of cars passing)	15 to 20
<i>Amusement and commercial</i>	
Airports (per passenger)	3 to 5
Country clubs, excluding residents	25
Day workers (per shift)	15 to 35
Drive-in theaters (per car space)	5
Gas station (per vehicle serviced)	10
Milk plant, pasteurization (per 100 lb of milk)	11 to 25
Movie theaters (per seat)	3
Picnic parks with flush toilets	5 to 10
Self-service laundries (per machine) (or 50 gal per customer)	400
Shopping center (per 1,000 ft ² floor area)	250
Stores (per toilet room)	400
Swimming pools and beaches with bathhouses	10
Fairgrounds (based on daily attendance), also sports arenas	1 to 2

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Table 3-12 (Continued)

Type of Establishment	gpd ^a
<i>Farming (per animal)</i>	
Cattle or Steer	12
Milking cow	35
Goat or Sheep	2
Hog	4
Horse or Mule	12
Cleaning milk equipment and tank	2
Cow washer, milking center	5 to 10
Liquid manure handling, cow	1 to 3
<i>Poultry (per 100)</i>	
Chickens	5 to 10
Turkeys	10 to 18
Cleaning and sanitizing equipment	4
<i>Miscellaneous Water Use Estimates</i>	<i>Water Use</i>
<i>Home</i>	<i>Gallons</i>
Water closet, tank	4 to 6 per use (3½ per use) ^b
Water closet, flush valve 25 psi (pounds per square inch)	30 to 40/min (3½ per use) ^b
Washbasin	1½/use (3 gpm)
Bathtub	30/use
Shower	10 to 30/use (3 gpm) ^b
Dishwashing machine, domestic	9½ to 15½/load
Garbage grinder	1 to 2/day
Automatic laundry machine, domestic	34 to 57/load—Top load 22 to 33/load—Front load
Garden hose	
½ in., 25-ft head	200/hr
½ in., ½ in. nozzle, 25-ft head	300/hr
Lawn sprinkler	120/hr
3000 square ft lawn, 1 in. per week	1850/wk
Air conditioner, water-cooled, 3-ton, 8 hr per day	2880/day
<i>Household Water Use:</i>	<i>Percent</i>
Toilet flushing	40
Bathing	30
Drinking and cooking	5
Dishwashing	6
Clothes washing	15
Cleaning and miscel.	4
<i>Water Demand per Dwelling Unit</i>	<i>Water Use (gpd)</i>
Average day	400
Maximum day	800
Maximum hourly rate	2000
Maximum hourly rate with appreciable lawn watering	2800

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Exhibit X-12 (cont)

Table 3-12 (Continued)

Miscellaneous Water Use Estimates		Water Use			
		Bedrooms			
Home Water System (Minimums)	2	3	4	5	
Pump capacity, gal/hr	250	300	360	450	
Pressure tank, gal minimum	42	82	82	120	
Service line from pump, diameter in in. ^c	$\frac{1}{2}$	$\frac{1}{2}$	1	$1\frac{1}{4}$	
Other Water Use	Gallons				
Fire hose, $1\frac{1}{2}$ in., $\frac{1}{2}$ in. nozzle, 70-ft head	2400/hr				
Drinking fountain, continuous flowing	75/hr				
Dishwashing machine, commercial					
Stationary rack type, 15 psi	6 to 9/min				
Conveyor type, 15 psi	4 to 6/min				
Fire hose, home, 10 gpm at 60 psi for 2 hours, $\frac{1}{2}$ in.	600/hr				
Restaurant, average	35/seat				
Restaurant, 24-hr	50/seat				
Restaurant, tavern	20/seat				
Gas station	500/set of pumps				
<i>Developing areas of the world</i>					
One well or tap/200 persons; controlled tap or hydrant—Fordilla or Robovalve type					
Average consumption, 5 gal/capita/day at well or tap					
Water system design, 30 gal/capita/day (10 gal/capita is common)					
Pipe size, 2 in. and preferably larger (1 and $1\frac{1}{2}$ in. common)					
Drilled well, cased, 6 to 8 in. diameter					
Water system pressure, 20 lb/sq in.					
(Keep mechanical equipment to a minimum)					
		Per capita per day			
Water Consumption in Rural Areas	(Liters)	(Gallons)			
Africa	15 to 35	4 to 9			
Southeast Asia	30 to 70	8 to 19			
Western Pacific	30 to 90	8 to 24			
Eastern Mediterranean	40 to 85	11 to 23			
Europe (Algeria, Morocco, Turkey)	20 to 65	5 to 17			
Latin America and Caribbean	70 to 190	19 to 51			
World Average	35 to 90	9 to 24			
(Assumes hydrant or handpump available within 200 meters; 70 Lpcd or more could mean house or central courtyard outlet.)					

^aPer person unless otherwise stated.

^bWater conservation fixtures at 60 psi, maximum flow for test purposes. Lower pressure would reduce usage further.

^cService lines less than 50 ft long, brass or copper. Use next larger size if iron pipe is used. Use minimum $1\frac{1}{2}$ in. service with flush valves. Minimum well yield, 5 gal/min.

Exhibit X-13

BLM MINING WATER REQUIREMENT GUIDELINES

Reprinted from Bureau of Land Management Technical Manual No. 4,
Placer Examination, by John Wells, May 1973

WATER REQUIREMENTS

The source, amount, and delivered cost of water are important elements in a placer operation. In many cases they determine the type of equipment or mining method used. Water estimates for new or proposed operations are generally based on experience or working data obtained from comparable operations.

The water required for various working methods varies widely and depends on many factors. Examples that follow are intended only to show the possible range.

- Rockers: A steady flow of 4 or 5 gallons per minute is sufficient to operate a small (1' x 4') rocker. Water can be dipped from a barrel where steady flow is not available. Net water consumption may be as low as 50 to 100 gallons per cubic yard, if carefully saved and reused.
- Small-scale hand mining: Where material is loosened by picking, and shoveled into a sluice box by one or two men, 170 to 225 gpm are required for a 12-inch box with steep grade.
- Ground sluicing: Water duty varies widely but may range between 1/10 and 3/4 cubic yard per miner's inch-day at small mines. This would be equivalent to about 22,000 to 162,000 gallons per cubic yard.
- Hydraulicking: Water duty varies widely and reflects the coarseness of gravel, degree of cementing, height of bank, grade of bedrock, available head, etc., and is commonly between 1/2 and 7 cubic yards per miner's inch-day. This would be equivalent to about 2,000 to 32,000 gallons per cubic yard. The better efficiencies are obtained at large, well-equipped mines. Small, 1 or 2-monitor mines operated by individual owners or lessees, usually have a water duty of less than 1 cubic yard per miner's inch-day.
- Stationary washing plants: These are typically owner-operated plants, fed by a dragline or a small power shovel. Most employ a trommel or other screening device ahead of the sluice. Incomplete figures indicate a range of 650 to 2,000 gallons per cubic yard.
- Movable washing plants and dry land dredges: In same category as stationary plants and same remarks apply. Water requirements ranging from 480 to 3,200 gallons per cubic yard have been noted. Plants equipped with Airlay bowls (in place of sluices) generally have good water economy.
- Dragline dredges: Net water required for washing gravel and maintaining the pond is governed by the amount of clay, porosity of the gravel, and other factors. Wash water which is commonly supplied by an 8-inch centrifugal pump working against a 40-foot pressure head, may range between 570 to 2,500 gallons per cubic yard.

Exhibit X-13 (cont.)

- Bucket-line dredges: Water in circulation aboard a dredge may range from 3,500 gpm to over 10,000 gpm depending on digging capacity of dredge and type of material being washed. Dredges are usually provided with independent high pressure and low pressure water systems, the high pressure being used for screen sprays and bucket nozzles, and the low pressure for the gold-saving tables and general service. When working in land-locked ponds, a fresh water input of 1,000 gpm to more than 2,000 gpm will be needed to replace muddy water which must be pumped out of the pond (to prevent excessive mud build-up) and to maintain pond level.

EXHIBIT X-13 (cont.)

Mark O'Keefe
Program Manager, SB76
Water Rights Bureau
32 South Ewing
Helena, MT 59601

2nd Draft - Educational

RE: Mining Claims as They Apply to Senate Bill 76

In many areas of Montana, the use or historical use of water in connection with the extraction of *metallic or *non-metallic deposits is quite evident. Mining involves the removal of materials from the earth. This is accomplished by several means, depending on the size and type of deposit. Many diverse mining and milling operations are found throughout Montana, most of which utilize ground and or surface water at some stage. If this use of water pre-dates July 1, 1973, (Water Use Act), it must be claimed under the provisions set forth by the law known as Senate Bill 76 or risk water right abandonment.

*metallic: refers to deposits of gold, silver, iron, copper, aluminum, lead, molybdenum, zinc, etc.

*non-metallic: refers to deposits of coal, gems, talc, limestone, phosphate, sand, gravel, rock, etc.

The major obstacle associated with quantifying those existing rights related to mining and mill operations rises from the lack of statistical information on the use. Many of these mines have not been in active operation for years and any information other than that found on the actual "Mining Patent" is difficult to locate. Unfortunately, most flows and volumes put on the Statement of Claim forms are educated guesses at best.

The following water quantifications for mining and mill techniques are general and if measuring devices or water use records are available, they certainly should be utilized. Many uses are non-consumptive and if so, this should be coded to indicate a "flow through non-consumptive use."

Using a ratio proportion type equation it is possible to arrive at a reasonable water use equivalent. This will only be possible if you have some ore amounts or capacities to work with. If not, the following information will be of little help.

Conventional milling, which usually consists of crusher, ball mills, flotation cells, tables, etc., has a rule of thumb requirement of 40 cubic feet per day for each ton of ore processed; that is, a 100 ton mill would require a minimum of 4000 cubic feet of water a day, a 200 ton per day mill would need 8000 cubic feet of water per day.

Heap leaching operations for the precious metals uses less water than conventional milling and need is calculated on the basis of 250 gallons of water for each ton of material being leached.

EXHIBIT X-13 (cont.)

I have found most water-use for mining operations being claimed under Senate Bill 76 refer to placer mines. In most cases placer mining is a non-consumptive use utilizing a sluice box, rocker, trommel or floating dredge.

A small rocker set-up (1' x 4') may utilize as little as 50-100 gallons per cubic yard of gravel washed, but most small trommels and larger sluice boxes consumption will be closer to 40 gallons of water for each cubic yard of gravel washed.

Small scale hand placer mining: This practice usually involves loosening gravel by picking and then shoveling this material into a sluice box by one or two people. Average water use is 200 gallons per minute for a 12-inch box with a steep grade.

Jigging with a sluice box requires 12-14 gallons per minute per square inch of jig.

An average conventional cyanide mill circuit utilizes 200-600 gallons of water per ton of ore, average floatation circuit takes 600-1000 gallons of water per ton of ore.

Average table circuit uses 1000-1400 gallons of water per ton of ore.

Average jig and table circuit may use 1200-2000 gallons of water per ton of ore.

*Jig/Jigging: refers to that device or process used to concentrate and separate ore from waste material.

Stationary washing plants: These are typically owner-operated plants, fed by a dragline or a small power shovel. Most employ a trommel or other screening device ahead of a sluice. Average figures indicate a range of 400-600 gallons of water per cubic yard of gravel processed.

Movable washing plants and dry land dredges are in the same category as stationary plants and the same remarks apply. Water requirements ranging from 480-3200 gallons per cubic yard of gravel are not uncommon.

Floating dredges on ponds recirculate the water with little water loss, but water use may vary considerably depending on the number of sluice boxes and their width, but in general need 450 – 5000 gallons per minute for the larger dredges and as low as 500 gallons per minute for the smaller floating units.

Floating dredge water recirculation is governed by the amount of silty deposits, clay, porosity of gravel and other factors. Wash water which is commonly supplied by an 8-inch centrifugal pump working against a 40-foot pressure head, may range between 570-2500 gallons per cubic yard of gravel washed.

Rusty Taylor

Water Rights Analyst
Water Rights Bureau

EXHIBIT X-14

ORSBORN METHOD

Estimation of Mean Stream Flow

Technical Document

To apply the Orsborn method, the examiner must determine:

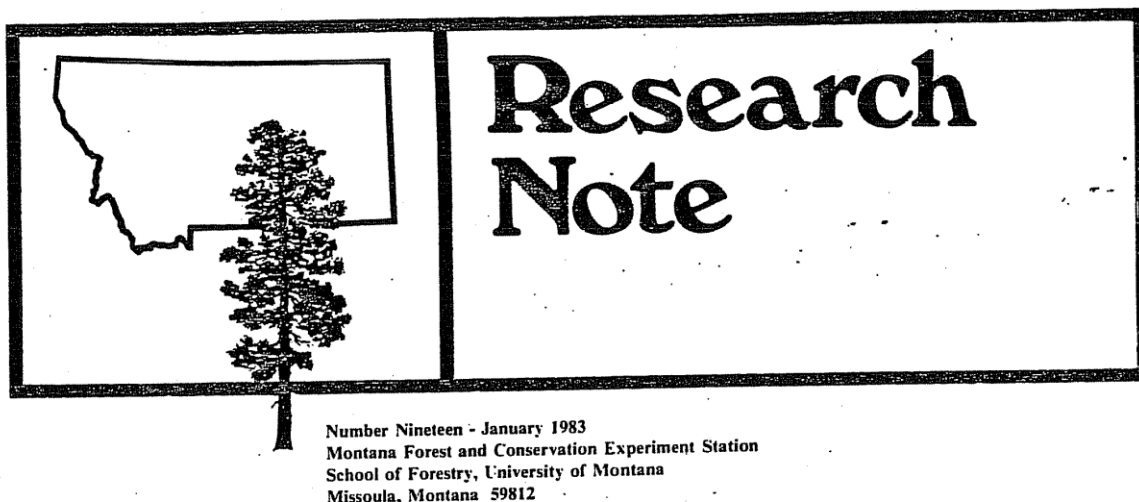
- the watershed drainage area in square miles (mi²) and
- the mean basin precipitation in inches.

The procedure is discussed in a Research Note in this exhibit. When the claimed period of use is less than one year, the Orsborn procedure should still be applied.

The watershed drainage area is defined by drawing a line perpendicular from the source at the POD to the nearest point on the watershed boundary. Then extend the line around the drainage area boundary. It is suggested that the drainage area, once defined, be broken into a square mile grid system for easier estimation. The mean basin precipitation can be found using precipitation maps (1941-1970 base period) prepared by the Soil Conservation Service also in this exhibit. When several isohyetal lines occur in a drainage basin, the mean basin precipitation can be a weighted average, but estimate on the high side.

The Orsborn method has five equations which vary slightly based on five hydrological homogeneous regions in Montana. The five different regions are outlined in Figure 5 of the Research Note. If the claim is on a boundary line between two regions, choose the higher numbered region. After the region has been determined, Figure 6 of the technical publication gives the corresponding equation. (Enlarged copies of these figures are provided at the end of the Research Note.) It should be noted that the Orsborn method has not been tested for eastern Montana.

Once the average annual discharge (QAA) has been determined, the calculation worksheet and drainage area map will become part of the file.



STREAMFLOW REGIONALIZATION IN WESTERN MONTANA¹

by

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The rain-on-snow-dominated hydrology of western Montana's mountainous terrain is very complex. This complexity makes it difficult to estimate water yield and timing from ungauged mountain watersheds. Nevertheless, such estimates are needed.

Numerous methodologies have been developed nationwide to estimate flood frequencies and average annual water yield (U.S. Agricultural Research Service 1977), yet hydrologists caution that these models should not be expected to provide predictions applicable to western Montana.

Models developed for use in Montana have been based on input-output characteristics. In general, precipitation data have been used as inputs, and data from measured stream flow have been used as outputs. More accurate estimation of mountain precipitation has improved each generation of models.

This paper reviews previous attempts to regionalize stream flow estimation in western Montana and presents two methods currently being used.

Previous Regionalization Attempts

Previous attempts to regionalize streamflow estimations were based on basic hydrologic principles. For example, the

¹Presented at the Western Snow Conference, April 20-23, 1982, Reno, NV.

combination of climatic, physiographic, vegetational, geologic and edaphic factors is unique in every watershed. So, if regions with relatively homogeneous watershed factors could be defined, it should be possible to build flow-estimation models that produce little prediction error.

Boner and Buswell (1970) divided Montana into three hydrologic regions (Figure 1). They developed regression models to predict flood flows and average annual water yield in each region. Ten basin and climatic variables were used in linear regression equations. Standard errors of estimate varied according to which dependent variable was used in each equation; the range was from 26 to 180 percent. The authors decided that these equations were not acceptable. They concluded that available information did not adequately describe basin characteristics, particularly geological characteristics and basin precipitation (valley observations, U.S. Weather Bureau 1969).

Farnes (1971; revised 1976, 1978) developed regionalization procedures to estimate peak flows and average annual water yield. When estimating peak flows, Farnes relied on the definition of three general climatic areas that influence peak flows in Montana and the subsequent identification of six regions for peak-flow estimation (Figure 2). In estimating average annual water yield, Farnes identified four precipitation zones and developed models for runoff prediction based on

EXHIBIT X-14 (cont.)

average annual basin precipitation. Errors in predictions were attributed to "alpine-rocky" or "deep-soil, heavily timbered" conditions. Farnes claimed that runoff estimation accuracy was 15 percent for most streams (Figure 3).

Farnes' improvement on the Boner and Buswell attempt can be attributed almost entirely to the development of U.S. Soil Conservation Service (SCS) mountain precipitation maps for Montana (1971; revised 1978). Data for these maps were derived from snow-survey information. Development and expansion of the snow-survey and Sno-tel systems in Montana have allowed more accurate determination of mean annual mountain precipitation.

Johnson and Omang (1976) divided Montana into seven geographic areas and developed regression equations to estimate the magnitude and frequency of floods in those regions (Figure 4). The models used drainage area, main-channel slope, mean annual precipitation and an areal-weighting factor to reduce unexplained variance.

Regions were delineated by uniformity of skew coefficients.² Precipitation data were obtained from the SCS maps. Nevertheless, the average standard estimate error for floods of selected return periods was more than 60 percent in all regions.

New Regionalization Models

Two prediction methods were recently adapted for use in western Montana. The first uses procedures developed by Orsborn (1975, 1976, 1978) to delineate hydrologic regions. The

²Skew is a measure of the asymmetry of the flood frequency distribution. Kotegoda (1980) discusses the unreliability of regional skewness in the definition of hydrologically homogeneous areas (see references).

second uses channel geometry to estimate average annual discharge and mean annual flood (Wahl 1977, Williams 1978, Harenberg 1980).

If a watershed is considered the integrator of all climatic, physiographic and land-use factors, a basic input-output model may be formed:

$$Q_{AA} = C(P \times A)$$

where Q_{AA} = discharge (average annual) in cfs.

P = mean basin precipitation (inches)

A = watershed drainage area (mi²)

C = coefficient that varies as a function of climatic, physiographic and land-use factors.

The coefficient, C , was used to define six hydrologically homogeneous regions in Montana (Figure 5). The boundaries of these regions were placed arbitrarily to coincide with major topographic features. Region O (eastern Montana) was not included in the model, and no attempt was made to delineate it from adjacent region I (central Montana). The data base included 140 streams with adequate discharge records. The coefficient, C , was determined for each stream, and a hydrologic region was arbitrarily defined by a range of coefficients. The widths of the coefficient ranges were chosen to insure adequate sample sizes for the regression model in each region. Logarithm transformations were used to achieve variance homogeneity. The regional models are "best-fit" equations for the data in each region. Watershed areas and mean basin precipitation were obtained from Johnson and Omang (1976) (Figure 6).

Sixteen randomly chosen streams were removed from the data base before regression analysis. These watersheds were categorized according to their location on Figure 5 and the

Table 1
Test Streams (not in regressions).

Map Ident.	USGS GAG Number	Name	Hyd. Region	Yrs. of Record	Area	PPT	QAA Meas.	Regionalization Pred.	SCS Pred.	Channel Geometry Prediction
A	6-160	Horse Prairie Ck.	2	7	325	18	109cfs	113	77.9	
B	6-260	Birch Ck.	2	27	36	36	29.3	24.8	37.7	
C	6-355	Norwegian Ck.	2	9	78	25	48.5	37.4	35.6	
D	6-845	S.F. Sun River	3	20	157	21	94.4	98.3	56.6	
E	6-760	Newland Ck.	2	8	6.7	18	2.9	2.3	1.6	
F	6-885	Muddy Ck.	2	34	314	12	122	73	0	
G	6-920	Two Medicine Riv.	4	36	317	36	381	449	332	
H	6-950	Birch Ck.	4	30	105	35	159	145	104	
I	6-1970	Big Timber Ck.	4	12	74.6	25	76.9	74	39	
J	6-2105	W.F. Rock Ck.	3	10	66.9	38	66.5	75.8	77.2	
K	12-3265	Trout Ck.	3	6	34.8	36	36.6	37.3	36.4	
L	12-3295	Flint Ck.	2	29	208	31	99	124	161.9	
M	12-3700	Swan River	3	48	671	52	1148	1046	1319	1234
N	12-3780	Mission Ck.	2	9	74.8	48	71.7	69.1	129.4	
O	12-3550	Flathead Riv.	4	19	450	55	971	971	963	920
P	12-3425	W.F. Bitterroot	3	29	317	32	286	303	264	236

AVERAGE REGIONALIZATION PREDICTION ERROR — 12.5%

AVERAGE SCS PREDICTION ERROR — 35%

AVERAGE CHANNEL GEOMETRY PREDICTION ERROR — 10%

Figure 1
Boner and Buswell Regions, 1970

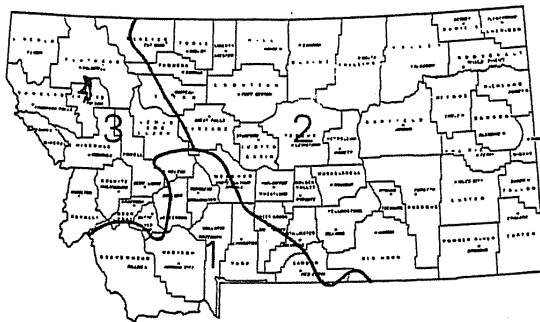
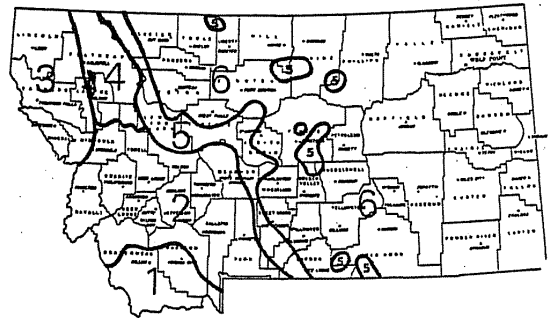


Figure 2
Farnes' Peak Flow Regions, 1972



appropriate regional regression equations were then applied. Analysis of the test streams produced an average absolute prediction error of 12.5 percent. This compares to an average SCS prediction error of 35 percent on the same test streams (Farnes 1978) (Table 1).

Assuming that stream channels are formed by predominant flows and that average annual discharge is strongly correlated with mean annual flood in a homogeneous region (Orsborn 1976, Dunne and Leopold 1978), channel dimensions should also provide a means of estimating flows.

Channel characteristics of 40 streams (Pt. 12; Upper Columbia River Basin) in western Montana were obtained from the U.S. Geological Survey files. Basin characteristics were taken from Johnson and Omang (1976) and Boner and Buswell (1970). A stepwise regression, using logarithm transformations for homogeneity of variance, resulted in:

$$Q_{AA} = \frac{.0336 (\text{Bank-full channel width})^{.76} (\text{Area})^{.149} (\text{Ppt.})^{1.04}}{(\text{stream gradient})^{.21}}$$

$$R^2 = .98$$

Further, mean annual flood (QF₂):

$$QF_2 = .408 (\text{Bank-full channel width})^{1.949}$$

$$R^2 = .93 \text{ (Figure 7)}$$

Three streams withheld from the data base to test the models had an average prediction error of 10 percent for both QAA and QF₂.

Prediction Error and Model Sensitivity

There are two basic types of errors associated with regionalization techniques. The first involves misdelineation of region boundaries and the second involves model sensitivity. The first method, based on Orsborn's input/output ratios, can be unreliable, particularly when used to evaluate areas where non-consecutive regions adjoin. For example, if a Region 1 stream was classified in Region 3, huge estimation errors would result. Thus, general knowledge of a stream's hydrologic behavior in relation to other streams in the region is necessary before the models can be applied.

The second method, based on channel geometry, was developed for streams draining into the Upper Columbia River Basin. This boundary is well-defined, and the models should be used only in the region.

Sensitivity analysis allows the assessment of relative change in model output caused by a change in inputs. With simple models, derivatives of output with respect to input may be taken, and the

Figure 3
Farnes' Mountain Hydrology, 1978

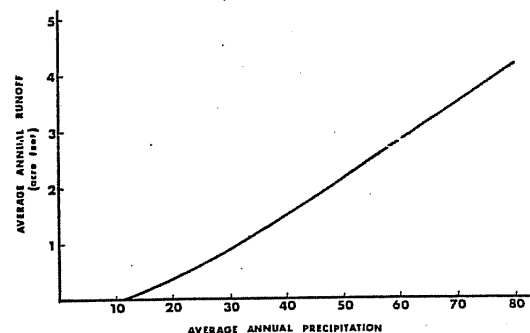


Figure 4
Johnson and Omang Regions, 1976

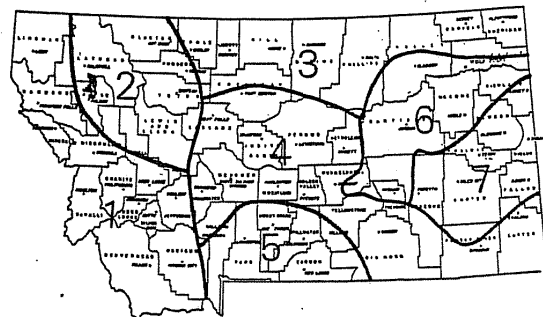
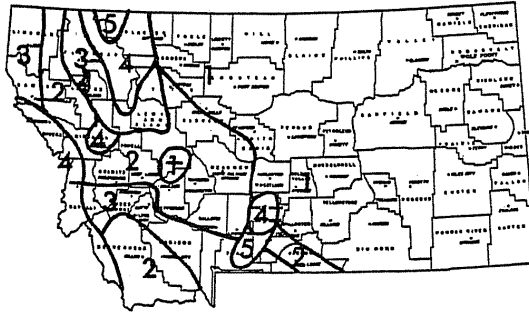


Figure 5
Streamflow Regions



sensitivity expressed as explicit functions.

With complex models such as these, solution of the partial differential equations is difficult; however, use of a few assumptions allows a simpler analysis. For example, watershed area (A) and channel gradient (GRAD) can be accurately determined from topographic maps. Similarly, bank-full channel width (WB) can be measured accurately in the field. While measurement errors of these parameters are possible, they will be relatively small. To simplify further the sensitivity analysis, we may assign a fixed value (measured without error) of 1 to all three parameters.

Accurate mean basin precipitation (P) estimates are not so easily accomplished. The largest scale routinely available for mountain precipitation maps is 1:250,000; Geological Survey maps are typically 1:25,000. Some land management agency maps may be larger scale. However, in most cases, isohyets must be transferred to larger scales, and the aerally weighted mean basin precipitation then determined. If a 10 percent error in precipitation estimate is assumed, the associated discharge prediction error can be estimated.

In the regional models:

$$Q_{AA} = a(P A)^d$$

and

$$Q_{AA} = \frac{a(WB)^b (A)^c (P)^d}{(GRAD)^e}$$

if the fixed values for inputs are used,

$$WB = 1, A = 1, GRAD = 1,$$

and

$$P = 1 \pm 10\% \text{ measurement error} = 1.1 \text{ or } .9$$

then, since (1) to any power = 1, in both regional models

$$Q_{AA} + \Delta Q_{AA} = a(P)^d$$

where ΔQ_{AA} = the relative change in Q_{AA} caused by measurement error in P

The coefficient, a, is a constant and will not alter the relative change in Q_{AA} . The coefficient, d, is nearly 1.0 in all models (Figures 6 and 7). Thus, a 10 percent error in precipitation estimate will produce an error of about 10 percent in Q_{AA} prediction.

Summary

This paper describes new regional models developed to predict average annual discharge and mean annual flood for

ungauged streams in western Montana. These models use precipitation estimates derived from snow-survey information. Their performance is superior to previous modeling efforts, largely because of improvements in the quantification of mountain precipitation.

Region delineation errors are the major cause of prediction error. However, accurate estimates of mean basin precipitation are difficult, despite good information on mountain precipitation. A model sensitivity analysis found that a 10 percent error in precipitation estimate will produce about a 10 percent error in Q_{AA} prediction. Test streams indicate the new models have an average prediction error of less than 20 percent. Thus, a combined possible error of 30 percent is still superior to the possible errors generated by previous methodologies developed for western Montana.

Figure 6
Regional Regression Equations

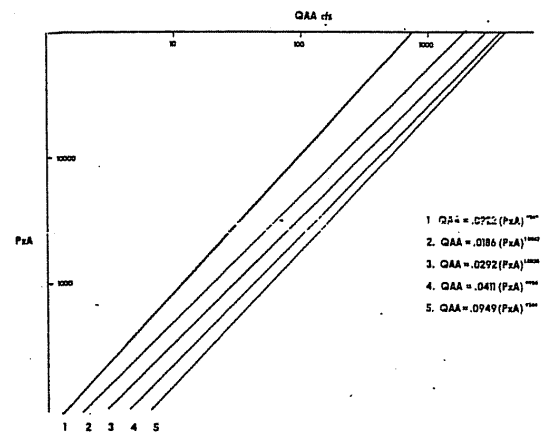


Figure 7

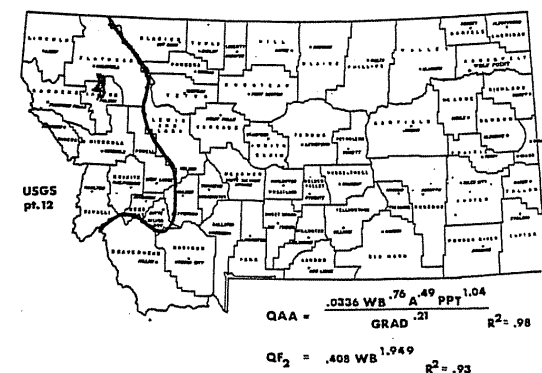


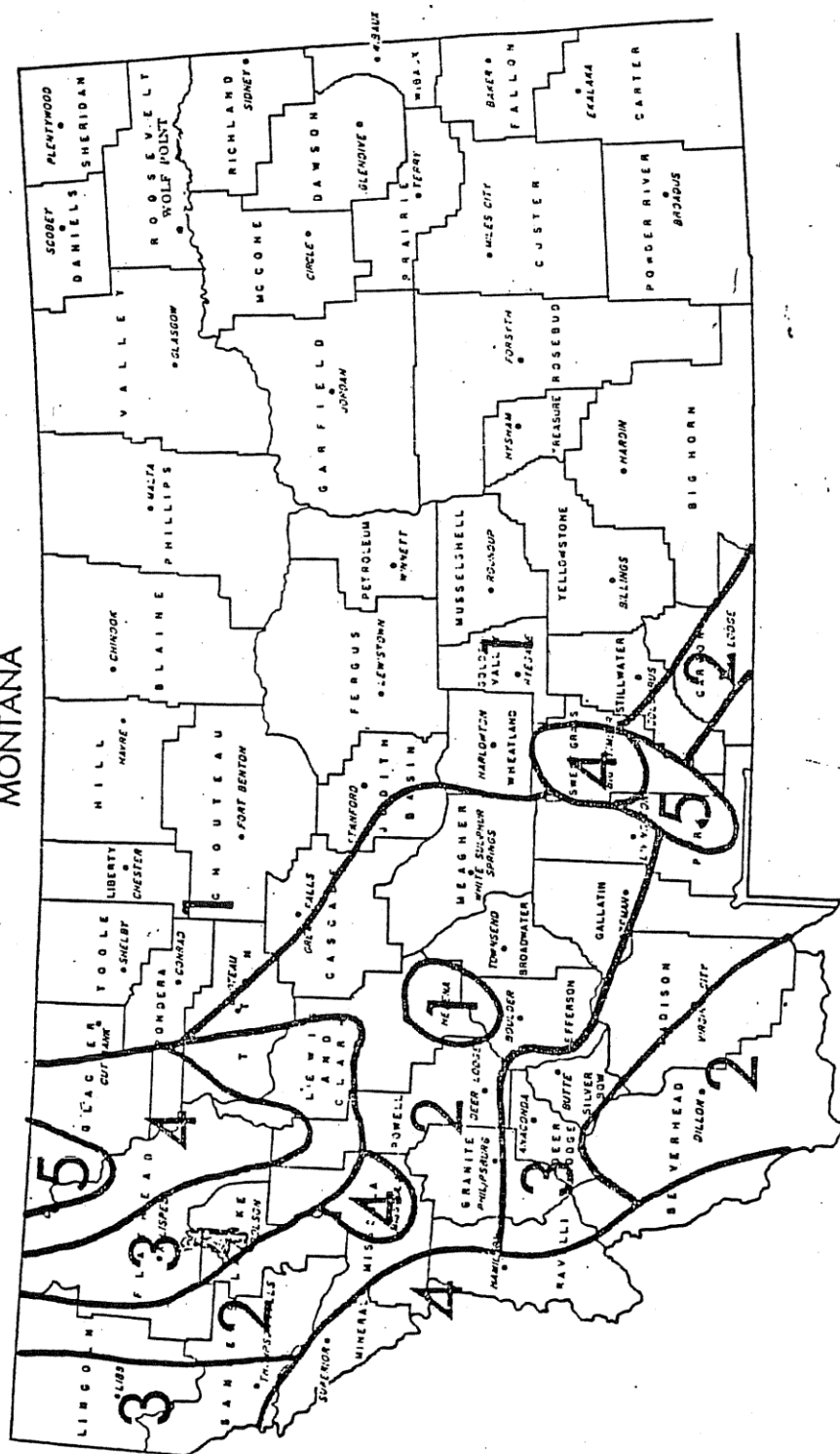
EXHIBIT X-14 (cont.)

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MONTANA



Regional Regression Equations

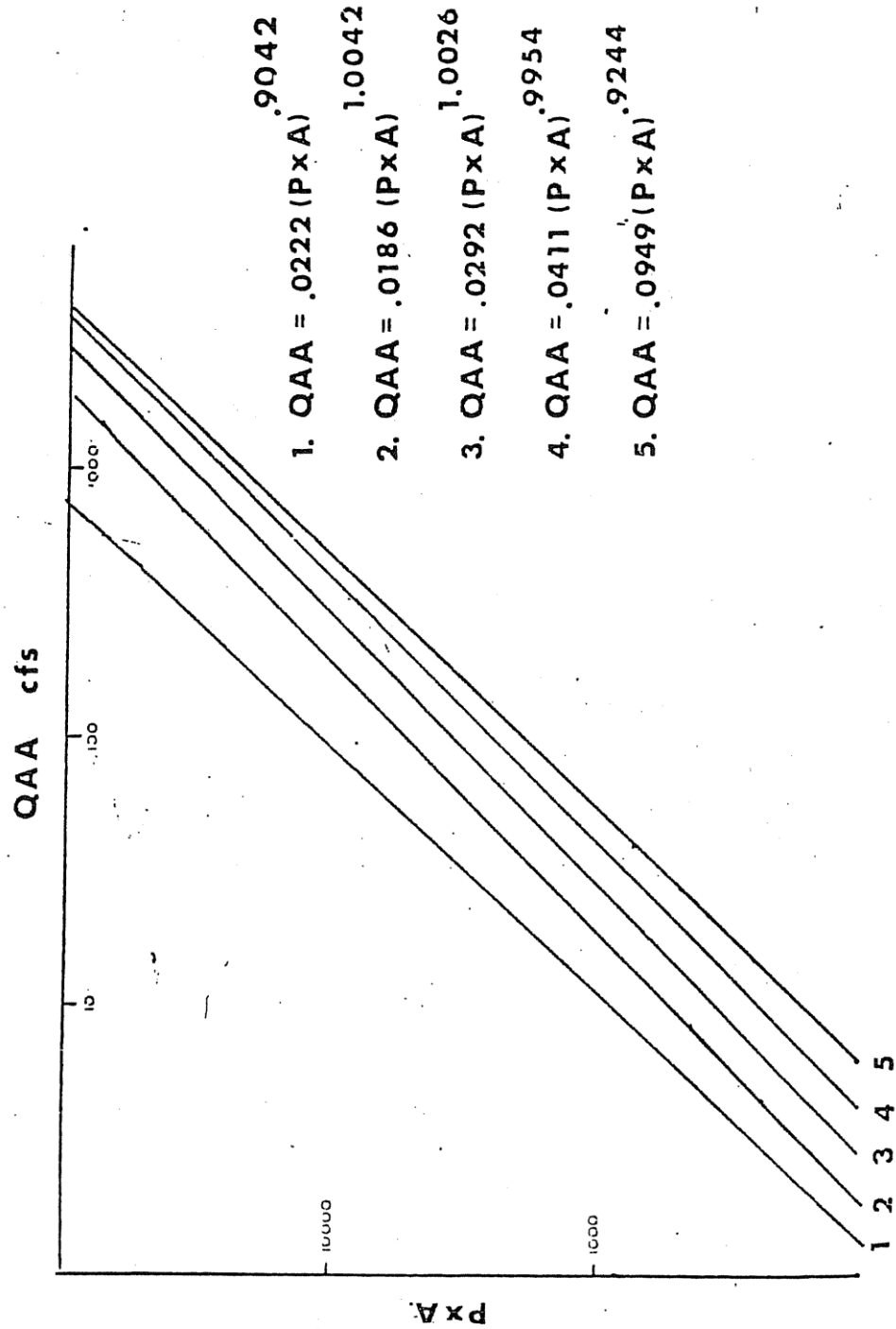


Figure VIII-5

APPLYING ORSBORN METHOD EXAMPLE

Claimed Information

Use: Mining
 Flow Rate: 50 CFS
 Type of Right: Filed
 Period of Use: 1/1 thru 12/31
 POD: SENWNW Section 7, T28N, R31W
 Means of
 Diversion: Headgate
 Priority Date: 00/00/1896
 Volume: 36, 190 AF

Orsborn Method

(A) Area: 600 acres or 0.9375 square miles
 (P) Mean Basin
 Precipitation: 60 inches
 Stream Flow
 Region: 3

$$Q_{AA} = C(PxA)^D$$

$$Q_{AA} = .0292 (PxA)^{1.0026}$$

$$Q_{AA} = .0292 (60 \times .9375)^{1.0026}$$

$$Q_{AA} = 1.7 \text{ cfs}$$

Conclusion

Claimed flow would be changed from 50 cfs to 1.7 cfs. The claim will be stored for Water Court engineer to review.

EXHIBIT X-14 (cont.)

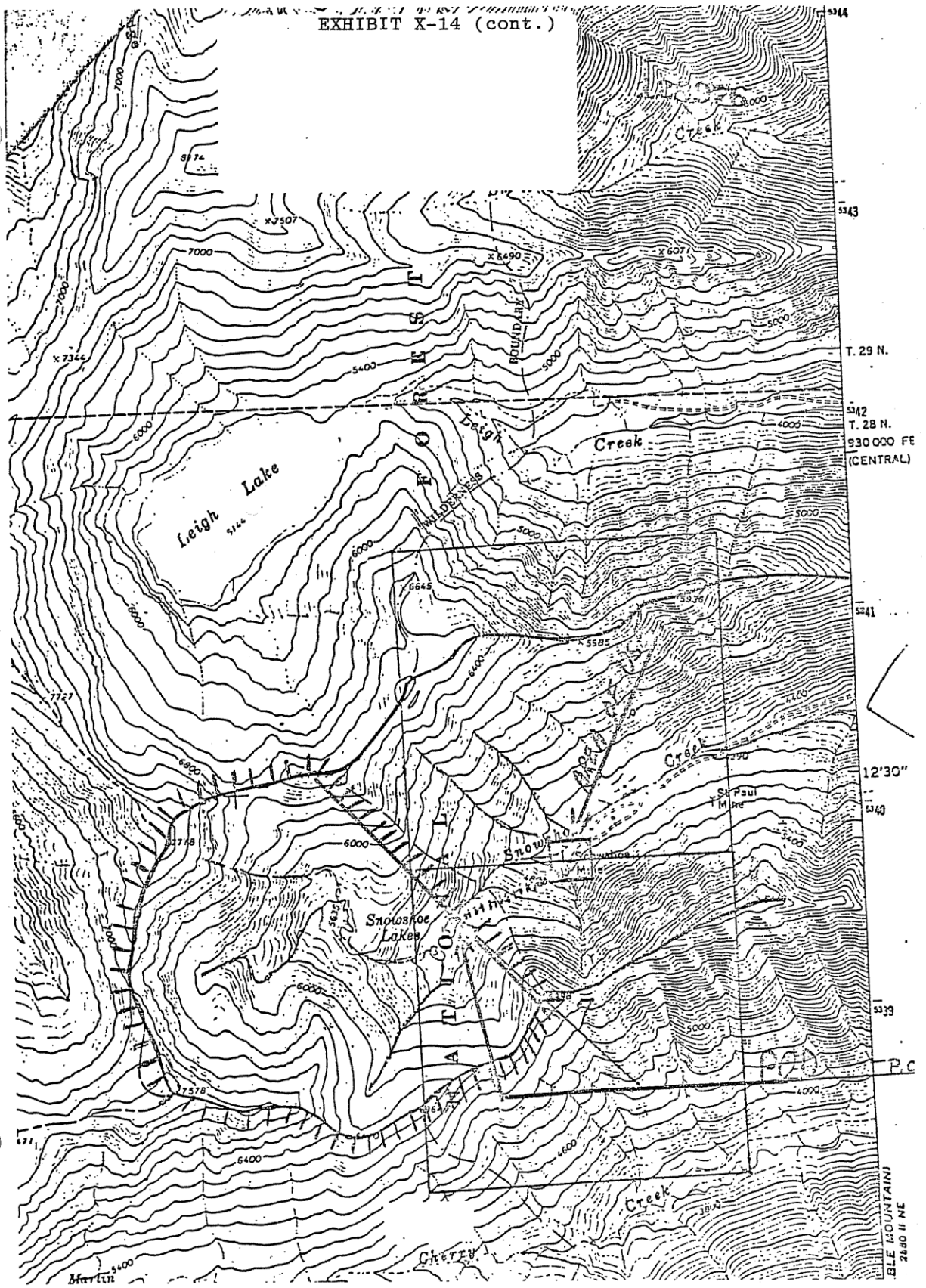


EXHIBIT X-15
PARRETT-HULL METHOD

A METHOD FOR ESTIMATING MEAN AND LOW FLOWS OF
STREAMS IN NATIONAL FORESTS OF MONTANA

By Charles Parrett and J. A. Hull

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 85-4071

Prepared in cooperation with the
MONTANA RESERVED WATER RIGHTS COMPACT COMMISSION
and the U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE



Helena, Montana
May 1985

EXHIBIT X-15 (cont.)

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HOEEL, Secretary

GEOLOGICAL SURVEY

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EXHIBIT X-15 (cont.)

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CONVERSION FACTORS

The following factors can be used to convert inch-pound units in this report to the International System of units (SI).

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain SI unit</u>
cubic foot per second	0.02832	cubic meter per second
foot	0.3048	meter
inch	25.40	millimeter
mile	1.609	kilometer
square mile	2.590	square kilometer

EXHIBIT X-15 (cont.)

A METHOD FOR ESTIMATING MEAN AND LOW FLOWS OF
STREAMS IN NATIONAL FORESTS OF MONTANA

By

Charles Parrett and J. A. Hull

ABSTRACT

Equations were developed for estimating mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge for ungaged streams on national forest lands in Montana. The equations for mean annual discharge used active-channel width, drainage area, and mean annual precipitation as independent variables, with active-channel width being most significant. The equations for 80-percent exceedance discharge and 95-percent exceedance discharge used only active-channel width as an independent variable.

The standard error of estimate for the best equation for estimating mean annual discharge was 27 percent. The standard errors of estimate for the equations were 67 percent for estimating 80-percent exceedance discharge and 75 percent for estimating 95-percent exceedance discharge.

INTRODUCTION

To quantify the federally reserved water right on Federal lands in Montana, a Reserved Water Rights Compact Commission was established by the Montana legislature. The Commission is charged with negotiating equitable water quantities necessary for national forest management by July 1985. The identification of the water needs on Federal lands is thus an important prerequisite to the negotiation process.

On national forest lands in Montana, forest hydrologists have identified various key levels of streamflow required for channel maintenance and other forestry purposes. Included among those key levels of streamflow are the bankfull discharge¹, mean annual discharge, 80-percent exceedance discharge², and 95-percent exceedance discharge².

The purpose of this report is to describe a method for estimating mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge for ungaged streams on national forest lands in Montana. Estimating equations were developed by multiple-regression techniques and relate the streamflow characteristics to drainage area, mean annual precipitation, and active-channel width.

¹ Defined for U.S. Forest Service purposes as the annual peak discharge with a 50-percent chance of exceedance.

² In this report, 80-percent or 95-percent exceedance discharge is equivalent to the daily mean discharge that is exceeded 80 percent or 95 percent of the time.

EXHIBIT X-15 (cont.)

The equations were developed using data from streamflow-gaging stations and estimates of streamflow made for miscellaneous streamflow-measurement sites in the Columbia River basin and the upper Yellowstone River basin. Long-term streamflow characteristics at the miscellaneous measurement sites had been estimated and described in previous reports. A report by Parrett and Hull (1984) described equations for estimating mean annual discharge and 80-percent exceedance discharge for ungaged streams in the mountains of western Montana, but the estimating equations did not include channel-geometry measurements. Likewise, a report by Parrett (1984) provides estimating equations for mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge for ungaged streams in the upper Yellowstone River basin in Montana, but channel-geometry measurements were not used. Channel-geometry measurements were used to develop estimating equations for mean annual discharge in western Montana in an earlier study by Parrett and others (1983), but that study used only streamflow-gaging-station data. The data base for the present study is much larger and includes many smaller streams for which gaged data are not available.

This report does not include estimating equations for bankfull discharge, because bankfull discharge was not one of the streamflow characteristics determined at the miscellaneous streamflow-measurement sites. Therefore, estimating equations for bankfull discharge based on channel-geometry measurements must be obtained from the study by Parrett and others (1983).

This report was prepared in cooperation with the Montana Reserved Water Rights Compact Commission and the U.S. Department of Agriculture, Forest Service. The estimating equations are intended to provide streamflow information that can be used by those agencies in future negotiation of equitable quantities of water for the national forests in Montana. The report also will be useful to designers, land-use managers, foresters, and others who require flow information on streams in forested areas of Montana.

ESTIMATING MEAN AND LOW FLOWS

Data used

Data from 33 streamflow-gaging stations and estimates of streamflow for 66 miscellaneous streamflow-measurement sites were used to develop the estimating equations in this report. The location of the gaging stations and measurement sites is shown in figure 1. The streamflow data, streamflow estimates, drainage area, mean annual precipitation, and active-channel width at each gaging station and measurement site are listed in table 4 at the end of the report.

Although the estimating equations were derived from streamflow information collected only in the Columbia River basin and the upper Yellowstone River basin, the equations were tested using data from 15 gaging stations located on or adjacent to national forest land outside those two basins. Based on those tests, the equations are considered to be applicable to all national forests in Montana. The national forest boundaries and the location of the 15 gaging stations used to test the accuracy of the estimating equations are shown in figure 1. Data for the 15 stations are given in table 5 at the end of the report.

EXHIBIT X-15 (cont.)

The streamflow information used to develop the estimating equations was previously compiled and used in the reports by Parrett and Hull (1984) and Parrett (1984). The streamflow information in the report by Parrett and Hull was developed using a common base period, water years 1938-82. The streamflow information in the report by Parrett was developed using a common base period, water years 1934-83, but was based on only one long-term station. The equations presented in this report are thus considered to be representative of the base period, water years 1938-82. Data from the gaging station having the longest period of record in Montana (Missouri River at Fort Benton, station 06090800) indicate that streamflow for the period 1938-82 is about the same as for the much longer period, 1881-1982.

Drainage areas were determined at each site by planimetering the outline of the basin on the best available topographic map. Mean annual precipitation is the basin average and was determined from maps contained in the report of the U.S. Soil Conservation Service (1977). The basin mean precipitation was determined by placing a clear grid overlay on the appropriate map, finding the precipitation value at each grid intersection within the basin, and averaging the results. Active-channel width was measured at each site using techniques previously described by Parrett and others (1983) and Omang and others (1983).

Regression analysis

Prediction equations for mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge were determined by a multiple-regression analysis of the data at the 99 sites listed in table 4. The regressions were performed using a digital computer program (SAS Institute, Inc., 1979), and equations of the following log-linear form were derived:

$$\text{Log } Q = \text{log } a + b_1 \text{ log } B + b_2 \text{ log } C + \dots + b_m \text{ log } M \quad (1)$$

where:

- Q, the dependent variable, is the streamflow characteristic being estimated, in cubic feet per second;
- a is the regression constant;
- b_1, b_2, \dots, b_m are the regression coefficients; and
- B, C, ..., M are values for drainage-basin or channel geometry characteristics (independent variables).

The log equations also can be expressed in the following non-linear form:

$$Q = a \cdot B^{b_1} \cdot C^{b_2} \dots M^{b_m} \quad (2)$$

The regression analysis considered active-channel width (W), in feet, drainage area (A), in square miles, and average annual precipitation (P), in inches, as independent variables. A "maximum R^2 improvement" routine was used to select independent variables for inclusion in the regression equations. A variable was included in the equations only if the statistical test for significance was 1 percent or less. In general, the smaller the test statistic for significance, the more significant is the variable in the equation.

The results of the regression analysis for mean annual discharge (Q_A), 80-percent exceedance discharge (Q_{80}), and 95-percent exceedance discharge (Q_{95}) are given in table 1. The table is arranged to show the effects of adding each new

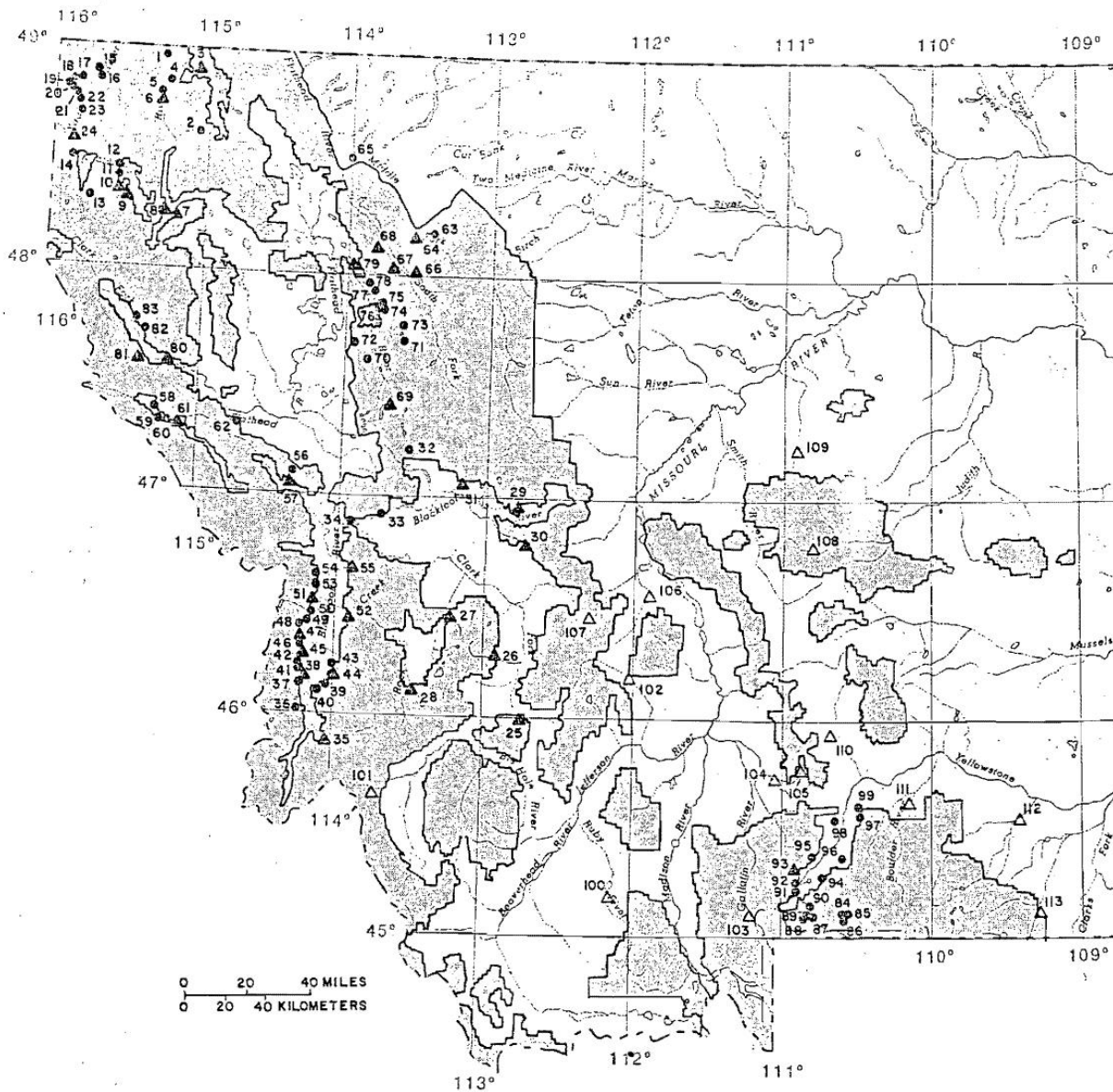
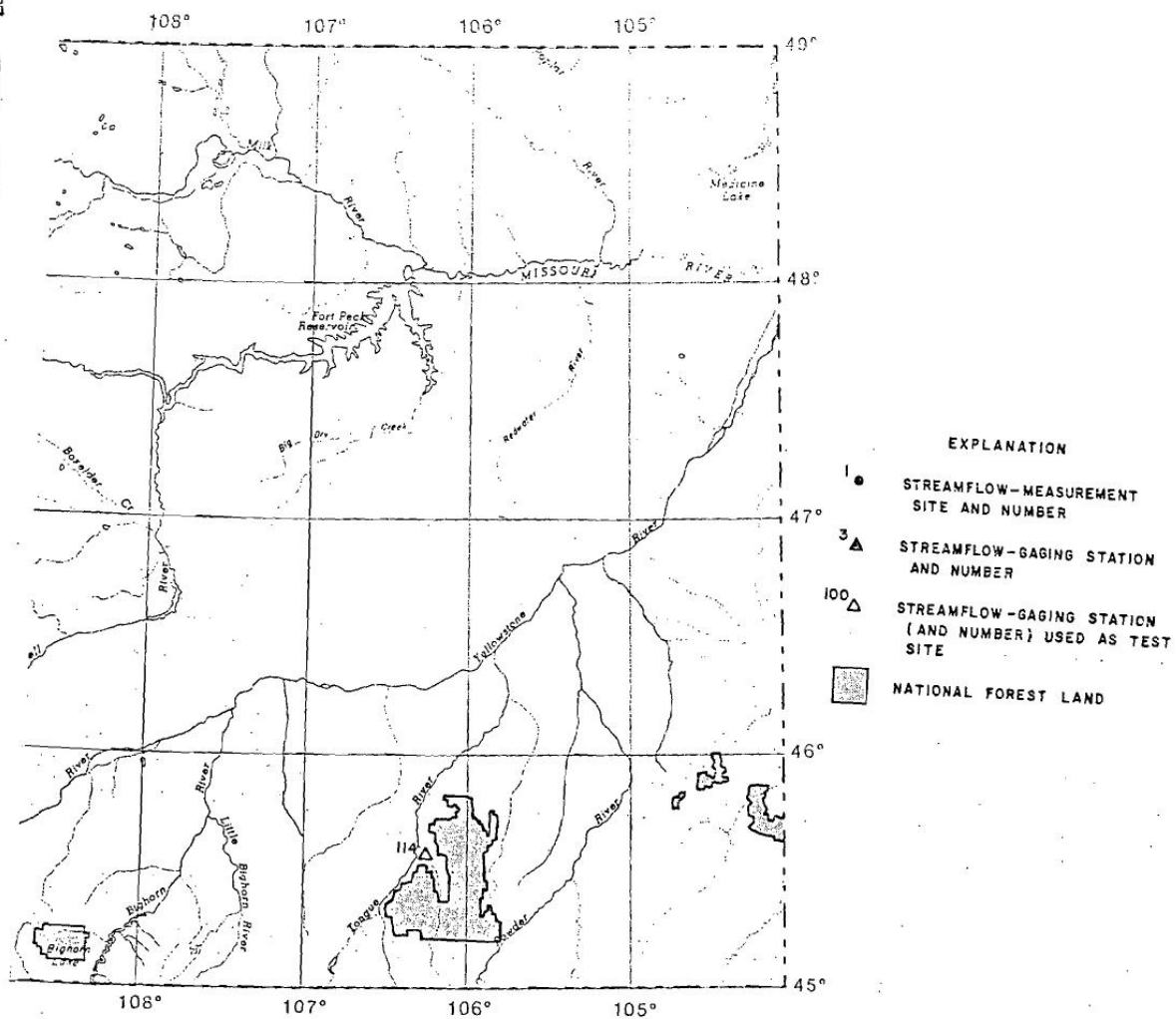


Figure 1.--Location of streamflow-measurement sites

EXHIBIT X-15 (cont.)



and streamflow-gaging stations.

EXHIBIT X-15. (cont.)

Table 1.--Results of regression analysis

Discharge (cubic feet per second)	Equation	Coefficient of determination (R ²)	Standard error of estimate (percent)
	(99 sites)		
Q _A	= 0.125W ^{1.772}	0.93	33
Q _A	= 0.186W ^{1.419} A ^{0.222}	.95	29
Q _A	= 0.025W ^{0.956} A ^{0.486} P ^{0.699}	.97	27
	(92 sites)		
Q ₈₀	= 0.035W ^{1.673}	.77	67
	(92 sites)		
Q ₉₅	= 0.026W ^{1.667}	.73	75

independent variable to the equation using the "maximum R² improvement" routine. For example, the first equation for Q_A shows that W was the most significant independent variable. Adding A to the equation improved the R² somewhat, and adding P further improved the R² although by less than A. All three independent variables were significant at the 1-percent level of significance.

The regression equations for the 80-percent exceedance discharge and the 95-percent exceedance discharge are based on data from only 92 of the sites listed in table 4. Seven sites were excluded because the low-flow characteristics either were greatly affected by springs or were zero as a result of the streams being dry.

Although all three independent variables were significant in the equation for estimating mean annual discharge, only active-channel width was significant in the equation for estimating 80-percent-exceedance discharge and 95-percent-exceedance discharge. In addition, table 1 indicates that the expected accuracy of the estimating equations (as measured by the coefficient of determination and the standard error of estimate) decreases as the dependent variable changes from mean annual discharge to 80-percent-exceedance discharge to 95-percent-exceedance discharge. This successive decrease in the predictive accuracy is not unexpected, however, for the reason that low flows (discharges less than the mean) are more sensitive to the local geologic and hydrologic conditions than are mean flows.

EXHIBIT X-15 (cont.)

Because the study area for this report includes the areas previously studied and described in the reports by Parrett and Hull (1984) and Parrett (1984), separate regression analyses were made for each of the three regions used in those reports. In this instance, however, the regional differences in the prediction equations were not significant. Apparently, the inclusion of channel width as an independent variable accounts for the regional variation in equations required when only drainage area and mean annual precipitation are used as independent variables.

Accuracy appraisal

The accuracy of the prediction equations derived for this report is generally comparable to the accuracy of the equations previously described in Parrett and Hull (1984) and in Parrett (1984). For example, the coefficient of determination (R^2) ranges from 0.90 to 0.97 and the standard error ranges from 17 to 33 percent for the equations for estimating mean annual discharge in the three different regions previously described. In this report, the coefficient of determination (R^2) is 0.97 and the standard error is 27 percent for the equation for estimating mean annual discharge using all independent variables.

The equations for estimating the 80-percent exceedance discharge and the 95-percent exceedance discharge cannot be compared directly with equations previously derived, because the equations in the previous reports used mean annual discharge as the only independent variable. The writers believe that the equations presented in this report will estimate the 80-percent or 95-percent exceedance discharge as accurately as the equations previously reported because of the comparability of the mean annual discharge estimates from the current equations and the previously derived equations.

Because the streamflow information used to derive the equations was all from within the Columbia River basin or the upper Yellowstone River basin, a test was made to determine if the equations would be applicable to other national forest lands in Montana. Thus, 15 gaging stations on streams with essentially unregulated flow that traverse or are adjacent to national forest areas were used to test the derived equations. The equations in table 1 were used to compute the mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge at the 15 test sites, and the computed results were compared with the results obtained from the actual flow record. The standard deviation of the residuals (the differences between the estimated and actual discharges) is analogous to the standard error of the regression equations, and the two are compared in table 2.

As indicated in table 2, the standard deviation of residuals for the estimating equation for mean annual discharge using only active-channel width is about the same as the standard error of estimate. This equation thus appears to provide reliable estimates of mean annual discharge anywhere within national forest lands in Montana. The equations for estimating mean annual discharge, using drainage area and drainage area together with mean annual precipitation as additional independent variables, both have significantly larger standard deviations of residuals than standard errors of estimate. If the one test site (Otter Creek, station 114) located east of longitude 109° is excluded, however, the standard deviations of residuals for the two equations using the additional variables decrease to 18 and 17 percent. Thus, the equations for estimating mean annual discharge that use drainage area or drainage area and mean annual precipitation are considered to be valid only for areas west of longitude 109°.

EXHIBIT X-15 (cont.)

Table 2.--Comparison of standard error of estimate with standard deviation of residuals at test sites

Equation	Standard error of estimate (percent)	Standard deviation of residuals at test sites (percent)
$Q_A = 0.125W^{1.772}$	33	32
$Q_A = 0.186W^{1.419}A^{0.222}$	29	47
$Q_A = 0.025W^{0.956}A^{0.486}P^{0.699}$	27	59
$Q_{80} = 0.035W^{1.673}$	67	91
$Q_{95} = 0.026W^{1.667}$	75	147

The standard deviations of residuals for the estimating equations for the 80-percent exceedance discharge and the 95-percent exceedance discharge are both substantially larger than the standard errors of estimate. A large part of the difference between the standard error of estimate and the standard deviation of residuals for the 80-percent exceedance discharge is attributable to one test site where the 80-percent exceedance discharge is less than 1 cubic foot per second. Excluding this test site (Tenmile Creek, station 107) from the analysis decreases the standard deviation of residuals for the 80-percent exceedance discharge to 68 percent, which is almost identical to the standard error of estimate. Similarly, two test sites (Tenmile Creek and Otter Creek), had very small (less than 1 cubic foot per second) 95-percent exceedance discharges. Excluding both sites from the analysis decreases the standard deviation of residuals for the 95-percent exceedance discharge to 78 percent, which is also close to the standard error of estimate. Thus, the estimating equations for the 80-percent exceedance discharge and the 95-percent exceedance discharge are both applicable to all national forest lands in Montana, but only when it is known that the streams do not periodically become dry or have very small base flows.

Limitations

Using the estimating equations outside the national forests or for sites where the values of the independent variables are outside the range of values used to derive the equations may give erroneous results. The range of values of independent variables used to derive the equations is listed in table 3 and can be used as a guide in deciding when the equations are applicable.

EXHIBIT X-15 (cont.)

Table 3.--Range of values of independent variables

Variable	Range of values
Active-channel width (W), feet	6 - 172
Drainage area (A), square miles	2.88 - 780
Average annual precipitation (P), inches	15 - 72

The estimating equations for the 80-percent exceedance discharge and the 95-percent exceedance discharge are not applicable to streams that receive water from springs or that periodically become dry because of localized geologic or hydrologic conditions. The equation for mean annual discharge using active-channel width as the only independent variable can provide reliable estimates in such instances, but the results need to be carefully examined for reasonableness. Likewise, the equation for mean annual discharge using active-channel width as the only independent variable is the only equation applicable to national forest lands east of longitude 109°. The inclusion of drainage area and mean annual precipitation as independent variables improves the reliability of the mean annual discharge estimates only in the western forest areas (west of longitude 109°).

Using active-channel width as an independent variable requires an onsite visit before discharge can be estimated. For reconnaissance-level flow investigations, the cost and effort required for a field measurement of channel width may not be justified. An onsite investigation commonly will reveal anomalies in the flow regimen, or local geology, however, so the requirement for a field visit generally will lead to more reliable results. As explained in previous reports by Omang and others (1983) and Parrett and others (1983), training and experience are requisites for making consistent measurements of active-channel width.

SUMMARY

Multiple regression equations were developed for estimating mean annual discharge, the 80-percent exceedance discharge, and the 95-percent exceedance discharge for streams on national forest lands in Montana. The equations for estimating mean annual discharge used active-channel width, drainage area, and average annual precipitation as independent variables, with active-channel width being the most significant. The standard error of estimate for the best equation for estimating mean annual discharge was 27 percent. The equations for estimating the 80-percent exceedance discharge and 95-percent exceedance discharge used active-channel width as the only independent variable and had standard errors of estimate of 67 and 75 percent, respectively.

The equations derived for this report were comparable in accuracy to equations previously derived that were based only on drainage basin and climatic variables. A test of the prediction accuracy of the equations when applied to national forest lands outside the Columbia River basin and the upper Yellowstone River basin was made using 15 streamflow stations outside those basins. For mean annual discharge, the equation using active-channel width as the only independent variable resulted in a standard deviation of residuals at the 15 test sites about equal to the stan-

EXHIBIT X-15 (cont.)

dard error of estimate of the regression equation. The equations using drainage area and mean annual precipitation as additional independent variables had larger standard deviations of residuals than the standard errors of estimate at the 15 test sites. Eliminating one test site, which limited the applicability of the two equations using drainage area and average annual precipitation to national forest lands west of longitude 109°, resulted in standard deviations of residuals less than the standard errors of estimate. The standard deviation of the residuals was greater than the standard error of estimate for both the 80-percent exceedance discharge and the 95-percent exceedance discharge, but the differences did not appear to be significant when two sites having very small discharges were excluded from the analysis. The estimating equations for mean annual discharge, 80-percent exceedance discharge, and 95-percent exceedance discharge thus are presumed to be applicable to all national forest lands in Montana, as long as the expressed limitations and general constraints on the use of the regression equations are not ignored.

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EXHIBIT X-15 (cont.)

Table 4.--Hydrologic information from streamflow sites and stations used to develop equations

Site or station No. (fig. 1)	Stream name and gaging- station number	Drainage area, (square miles)	Mean annual precip- itation (inches)	Active- channel width (feet)	Mean annual dis- charge ¹ (cubic feet per second)	80-per- cent exceed- ance dis- charge ¹ (cubic feet per second)	95-per- cent exceed- ance dis- charge ¹ (cubic feet per second)
1	Young Creek below South Fork	19.0	31	17	15.1	5.1	3.6
2	Cayuse Creek	5.29	28	11	6.6	.4	.3
3	Tobacco River (12301300)	440	31	48	268	86.0	66.0
4	Sullivan Creek	14.1	33	16	10.1	2.9	1.7
5	Boulder Creek	18.1	34	23	19.4	3.9	2.4
6	Big Creek near Rexford (12301810)	139	37	44	149	19.0	13.0
7	Wolf Creek near Libby (12301999)	216	27	40	67.0	8.2	6.3
8	Fisher River near Jennings (12302000)	780	32	111	510	127	97.0
9	Granite Creek (12302500)	23.6	67	32	71.0	14.0	8.6
10	Flower Creek (12303100)	11.1	67	17	27.0	6.5	5.1
11	Cedar Creek	12.9	61	20	23.8	4.8	3.6
12	Quartz Creek	35.4	47	28	69.0	19.0	15
13	Camp Creek	11.3	63	19	19.3	4.4	3.8
14	Ruby Creek	15.8	64	19	26.8	3.7	2.7
15	Pete Creek below Hensley Creek	29.8	35	26	34.7	3.1	1.9
16	Pete Creek at mouth	33.8	34	25	39.4	3.1	1.9
17	Spread Creek	37.3	50	50	80.5	15.0	12.0
18	Hellroaring Creek at U.S. Forest Service bridge	9.65	70	30	27.0	4.0	3.5
19	North Fork Meadow Creek	6.33	72	19	13.6	2.2	1.6
20	Meadow Creek	20.4	68	30	42.6	4.4	3.0
21	Red Top Creek	9.96	69	18	19.7	3.2	2.5
22	Cyclone Creek	5.71	67	9	10.7	2.2	1.7
23	Fourth of July Creek	7.84	64	13	13.1	2.2	1.8
24	Yaak River (12304500)	766	43	136	888	158	120
25	German Gulch (12323500)	40.6	18	20	21.0	6.4	5.4
26	Racetrack Creek (12324100)	39.5	35	22	59.0	20.0	17.0
27	Boulder Creek (12330000)	71.3	31	28	48.0	17.0	12.0
28	Middle Fork Rock Creek (12332000)	123	35	56	123	33.0	24.0
29	Blackfoot River near Helmville (12335000)	481	15	100	342	115	94.0
30	Nevada Creek (12335500)	116	23	28	38.0	8.8	5.6
31	Monture Creek (12338690)	140	35	52	184	35.0	29.0
32	Deer Creek	19.8	39	23	21.1	2.5	2.0
33	West Twin Creek	7.33	25	15	11.3	1.9	1.2
34	Marshall Creek	5.63	23	6	2.3	1.1	.7
35	East Fork Bitterroot River (12343400)	381	32	70	282	83.0	68.0
36	Tin Cup Creek	33.4	65	38	91.0	13.6	8.5
37	Lost Horse Creek	66.3	68	53	190	25.0	20.0
38	Camas Creek (12345800)	6.01	62	15	15.2	1.3	1.0
39	Sleeping Child Creek	64.7	31	33	58.6	12.0	10.0
40	Little Sleeping Child Creek	11.2	21	7	3.3	.6	.5
41	Roaring Lion Creek	23.9	67	32	63.5	6.6	3.8
42	Sawtooth Creek	22.6	63	32	60.3	7.7	5.8
43	Gird Creek	28.8	23	11	17.1	6.3	5.5
44	Skalkaho Creek (12346500)	87.8	36	34	91.0	26.0	22.0
45	Blodgett Creek (12347500)	26.4	64	37	68.0	9.2	4.8
46	Mill Creek	17.6	62	27	50.3	5.0	4.5
47	Bear Creek (12350000)	26.8	63	41	70.0	8.5	4.3
48	Sweat House Creek	10.2	62	23	25.3	3.5	2.2
49	Gash Creek	3.37	60	11	10.7	1.5	1.3
50	Big Creek	32.9	61	39	93.3	16.0	13.0
51	Kootenai Creek (12350500)	28.9	64	38	78.0	12.0	7.4
52	Burnt Fork Bitterroot River (12351000)	74.0	32	20	50.0	17.0	13.0

EXHIBIT X-15 (cont.)

Table 4.--Hydrologic information from streamflow sites and stations used to develop equations--Continued

Site or station No. (fig. 1)	Stream name and gaging-station number	Drainage area, (square miles)	Mean annual precipitation (inches)	Active-channel width (feet)	Mean annual discharge ¹ (cubic feet per second)	80-per-cent exceed-ance discharge ¹ (cubic feet per second)	95-per-cent exceed-ance discharge ¹ (cubic feet per second)
53	Bass Creek	13.1	58	18	27.3	8.2	5.3
54	Sweeney Creek	16.4	60	26	31.0	7.1	4.3
55	Eightmile Creek (12351400)	20.6	21	10	8.0	3.5	2.9
56	Butler Creek	10.7	38	15	11.9	1.7	1.4
57	Ninemile Creek (12353280)	170	38	48	124	27.0	21.0
58	Twelvemile Creek	40.7	50	23	44.4	8.8	7.6
59	Ward Creek	22.8	57	22	40.9	8.4	6.9
60	Twomile Creek	17.1	52	20	23.0	5.4	4.6
61	St. Regis River (12354000)	303	52	130	541	112	83.0
62	Siegel Creek	14.2	40	12	10.5	3.4	3.0
63	Bear Creek	20.4	47	25	43.0	8.4	6.2
64	Middle Fork Flathead River at Essex (12357000)	510	52	172	1,100	188	128
65	Fish Creek	15.3	44	19	24.7	7.5	6.4
66	Twin Creek (12360000)	47.0	53	41	112	14.0	8.4
67	Sullivan Creek (12361000)	71.3	53	63	210	34.0	22.0
68	Graves Creek near Hungry Horse (12361500)	27.0	67	40	127	20.0	14.0
69	Swan River near Condon (12369200)	69.1	54	72	160	41.0	33.0
70	Piper Creek	11.8	55	27	22.2	4.7	3.0
71	Goat Creek above Scout Creek	8.27	72	20	24.2	.0	.0
72	South Woodward Creek above Fatty Creek road	2.88	60	10	6.2	5.0	3.9
73	Soup Creek above Soup Creek Campground	4.5	67	15	12.2	2.6	1.7
74	South Fork Lost Creek	14.8	61	25	42.9	6.7	5.3
75	North Fork Lost Creek	13.0	60	25	30.7	5.3	4.0
76	Lost Creek	31.7	58	40	61.5	8.3	6.2
77	Bond Creek	7.58	53	11	12.8	1.2	.8
78	Hall Creek	4.66	54	15	12.7	3.1	2.1
79	Swan River near Big Fork (12370000)	671	46	165	1,180	417	330
80	Thompson River (12389500)	642	41	95	480	176	144
81	Prospect Creek (12390700)	182	54	53	258	57.0	43.0
82	Graves Creek	28.3	56	26	42.9	1.0	.2
83	Deep Creek	12.6	56	18	18.2	2.8	2.0
84	North Fork Bear Creek	13.4	33	24	22.6	4.2	2.2
85	Bear Creek above North Fork Bear Creek	13.8	33	32	37.3	4.1	2.3
86	Bear Creek at Jardine	27.2	33	39	60.0	7.0	4.7
87	Mol Heron Creek	18.1	34	15	24.4	8.4	6.0
88	Cinnabar Creek above Cottonwood Creek	14.5	38	11	10.7	4.7	3.7
89	Cinnabar Creek at mouth	23.9	34	11	12.7	6.5	5.2
90	Cedar Creek near Corwin Springs	21.3	27	12	9.2	2.4	1.1
91	Tom Miner Creek at mouth	65.8	35	30	57.2	22.5	14.5
92	Rock Creek near Corwin Springs	28.8	37	21	23.3	4.6	3.7
93	Big Creek near Emigrant (06191800)	60.9	36	29	62.0	23.2	20.0
94	Sixmile Creek	33.8	28	20	34.0	7.9	6.0
95	Fridley Creek	17.2	37	17	19.8	6.7	4.9
96	Mill Creek above national forest boundary	148	33	54	160	26.0	17.5
97	Deep Creek near Livingston	18.8	30	22	12.7	.5	.3
98	Trail Creek	41.8	26	16	20.7	6.1	3.9
99	Suce Creek	9.77	23	12	6.4	.7	.6

¹ All discharge data from gage record at gaging stations; all other discharge information is estimated.

EXHIBIT X-15 (cont.)

Table 5.--Hydrologic data from streamflow stations used to test equations

Station No. (fig. 1)	Stream name	Drainage area (square miles)	Mean annual precipitation (inches)	Active-channel width (feet)	Mean annual discharge ¹ (cubic feet per second)	80-percent exceedance discharge ¹ (cubic feet per second)	95-percent exceedance discharge ¹ (cubic feet per second)
100	Ruby River (06019500)	538	18	44	177	98.0	82.0
101	Trail Creek (06024500)	71	30	39	85.0	15.0	11.0
102	Boulder River near Boulder (06033000)	381	19	45	121	21.0	11.0
103	Taylor Creek (06043000)	98	40	39	98.0	19.0	15.0
104	East Gallatin River (06048000)	143	26	35	84.7	38.0	28.0
105	Bridger Creek (06048500)	62	33	22	36.6	6.7	4.5
106	Prickly Pear Creek (06061500)	192	19	27	48.7	20.0	14.0
107	Tennile Creek (06062500)	32.7	24	16	18.0	.67	.32
108	Sheep Creek (06077000)	54.4	30	26	31.9	9.3	6.8
109	Belt Creek (06090500)	368	25	62	189	30.0	16.0
110	Brackett Creek (06194000)	57.9	26	23	28.0	5.8	3.2
111	Boulder River near Contact (06197500)	226	37	80	385	61.0	48.0
112	Stillwater River (06205000)	975	32	140	970	282	201
113	Rock Creek (06209500)	124	40	65	174	34.0	27.0
114	Otter Creek (06307740)	707	15	16	7.3	1.5	.24

¹All discharge data from gage record.

EXHIBIT X-16

OMANG-PARRETT METHOD

A METHOD FOR ESTIMATING MEAN ANNUAL RUNOFF OF UNGAGED STREAMS
BASED ON BASIN CHARACTERISTICS IN CENTRAL AND EASTERN MONTANA
By R. J. Omang and Charles Parrett

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 84-4143

Prepared in cooperation with the
U.S. BUREAU OF LAND MANAGEMENT



Helena, Montana
June 1984

EXHIBIT X-16 (cont.)

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CONVERSION FACTORS

For those readers who may prefer to use the International System of units (SI) rather than inch-pound units, the conversion factors for the terms used in this report are listed below.

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain SI unit</u>
cubic foot per second	0.02832	cubic meter per second
foot per mile	0.1894	meter per kilometer
inch	25.40	millimeter
square mile	2.590	square kilometer

EXHIBIT X-16 (cont.)

A METHOD FOR ESTIMATING MEAN ANNUAL RUNOFF OF UNGAGED STREAMS BASED ON BASIN CHARACTERISTICS IN CENTRAL AND EASTERN MONTANA

By

R. J. Omang and Charles Parrett

ABSTRACT

Equations using basin characteristics were developed for estimating mean annual runoff at ungaged streams in central and eastern Montana. The study area was divided into three regions and separate multiple-regression equations were developed for each region. Drainage area was determined to be the most significant basin characteristic in all three regions.

The standard error of estimate was 31 percent in Region 1 based on data from 17 stations. The standard error of estimate ranged from 64 to 51 percent in Region 2 based on 27 stations and ranged from 103 to 37 percent in Region 3 based on 29 stations; the standard error decreased as more independent variables were added to the estimating equation.

Data from stations with less than 10 years of record were extended based on correlation with stations having long-term record. Coefficients of determination (R^2) and equivalent years of record were determined and used as a basis for adjusting the record.

INTRODUCTION

The purpose of this report is to describe a method for estimating mean annual runoff of ungaged streams in central and eastern Montana. The estimating equations were developed by relating physiographic and climatic characteristics of the drainage basin to mean annual runoff. The estimating relations of this report are based on a current (1982) data base and are considered to be more reliable than a previous report by Boner and Buswell (1970) because of more extensive streamflow-gaging records and improved analytical procedures.

The report is based on basin characteristics and data for 73 streamflow-gaging stations on unregulated streams having at least 5 years of streamflow record. Some streamflow-gaging sites having record in excess of 5 years were excluded from the analysis because the data were considered to be unreliable or unrepresentative of the region owing to stock dams, surface geology, or bad record.

Recent reports by Parrett and others (1983) and Omang and others (1983) provide methods for estimating mean annual runoff based on channel-geometry measurements. The report by Boner and Buswell is the only previous report that provides estimating equations for mean annual runoff based on basin characteristics. A report by Ferreira (1981) includes a mean annual runoff map for selected drainage basins in the coal area of southeastern Montana.

EXHIBIT X-16 (cont.)

The estimating equations presented herein will be useful to land-use managers, water-rights administrators, designers, and others who need to estimate streamflow on an annual basis. This report was prepared in cooperation with the U.S. Bureau of Land Management.

GENERAL DESCRIPTION OF THE AREA

Montana is an area of 147,100 square miles having widely varying geographic and climatic conditions. East of the Rocky Mountains, in a broad belt extending generally north-south through the central part of the State, plains are interrupted by isolated mountain ranges. East of the isolated mountains the land is generally flat or rolling prairie with deeply incised larger streams. The location of the area studied is shown in figure 1.

The climate of central and eastern Montana is affected significantly by the topography. Annual precipitation in the mountainous areas ranges from 20 to 40 inches and much of this occurs as snow. Most of the yearly runoff from the mountainous areas results from snowmelt. In the eastern plains, precipitation ranges from 12 to 16 inches and is more variable, more intense, and generally less, on an annual basis, than in the mountains. Runoff generally results from snowmelt during the spring, thunderstorms during the summer, and occasionally a combination of late snowmelt and rain.

Because of the diverse topography and climate, the area was divided into three regions for the mean annual runoff analysis. These regions are illustrated in figure 1. Region 1 is predominantly flat plains north of the Missouri River. Runoff is variable, with most smaller streams being ephemeral or intermittent. Runoff is produced by snowmelt and rainfall. Region 2 is also mostly flat plains, but runoff tends to be more variable than in Region 1. The area north of the Yellowstone River is the area most affected by intense summer thunderstorms. The area south of the Yellowstone River has intense thunderstorms, but they generally are not as prevalent as in the area north of the Yellowstone River. Region 3 contains mountainous areas and is generally forested. Annual precipitation results in accumulated snowpack, and runoff occurs primarily as a result of snowmelt.

DATA USED

Streamflow data

Streamflow data from 73 streamflow-gaging stations with 5 or more years of continuous record were used in this study. Data from stations with less than 10 years of record were then extended based on correlation with stations having long-term record. Each correlation of short-term versus long-term records was examined closely to make sure that spurious correlation did not exist. These stations then were used to develop the final regression equations. Data through the 1982 water year were used in the analysis. Gaging stations where the flows are substantially affected by regulation or diversion were generally not used in the analysis. The location and station number of all gaging stations from which data were used are shown in figure 1. The mean annual runoff for each gaging station is listed in table 4 (at back of report). The mean annual runoff is the average daily discharge, in cubic feet per second, for the period of record.

EXHIBIT X-16 (cont.)

Basin-characteristics data

Basin characteristics tested for inclusion as independent variables in the development of estimating equations for mean annual runoff included:

A	drainage area, in square miles;
P	mean annual precipitation, in inches;
F+10	forest cover index, in percent;
E/1000	mean basin elevation index, in feet above sea level;
HE+10	basin high-elevation index, in percent;
Jan+10	mean January minimum temperature index, in degrees Fahrenheit;
L	main channel length, in miles;
S	main channel slope, in feet per mile;
I ₂₄	precipitation intensity index for a storm of 24 hours duration having an exceedance probability of 50 percent, in inches per hour; and
S _i	soil-infiltration index in inches.

Basin characteristics found to be important in the various estimating equations were drainage area, mean annual precipitation, forest cover index, and main channel slope. Drainage area is expressed in square miles and is determined for ungaged sites by planimetry of the outline of the drainage basin on the best scale topographic map available. Mean annual precipitation is the basin average, in inches, determined from the maps contained in the report of the U.S. Soil Conservation Service (1977). The forest cover index is the percentage of the drainage basin covered by forest (F) plus 10; it is determined by planimetry of the forest (green) areas shown on the best scale U.S. Geological Survey topographic maps, multiplying by 100, dividing the result by the total basin drainage area, and adding a value of 10. The value 10 is added to the percentage to ensure that values close to zero do not occur. Main channel slope, in feet per mile, is determined from the main channel elevations determined at points 10 and 85 percent of the main channel length. The difference in elevation at the two points is divided by 75 percent of the main channel length to obtain main channel slope. The values for each gaging station used in the analysis are listed in table 4 (at back of report).

METHOD OF ANALYSIS

Extension of streamflow records

The mean annual runoff record for gaging stations with less than 10 years of record was extended based on correlation between the record at the site of interest and the record at a nearby hydrologically similar long-term gaging station. The extension was done using simple linear regression (Riggs, 1968). Correlation coefficients (r) were computed for each set of stations that were correlated. If the coefficient of determination (R²) was greater than 0.60, the station was considered to be a potential correlating station. These stations then were used to develop the final regression equations.

EXHIBIT X-16 (cont.)

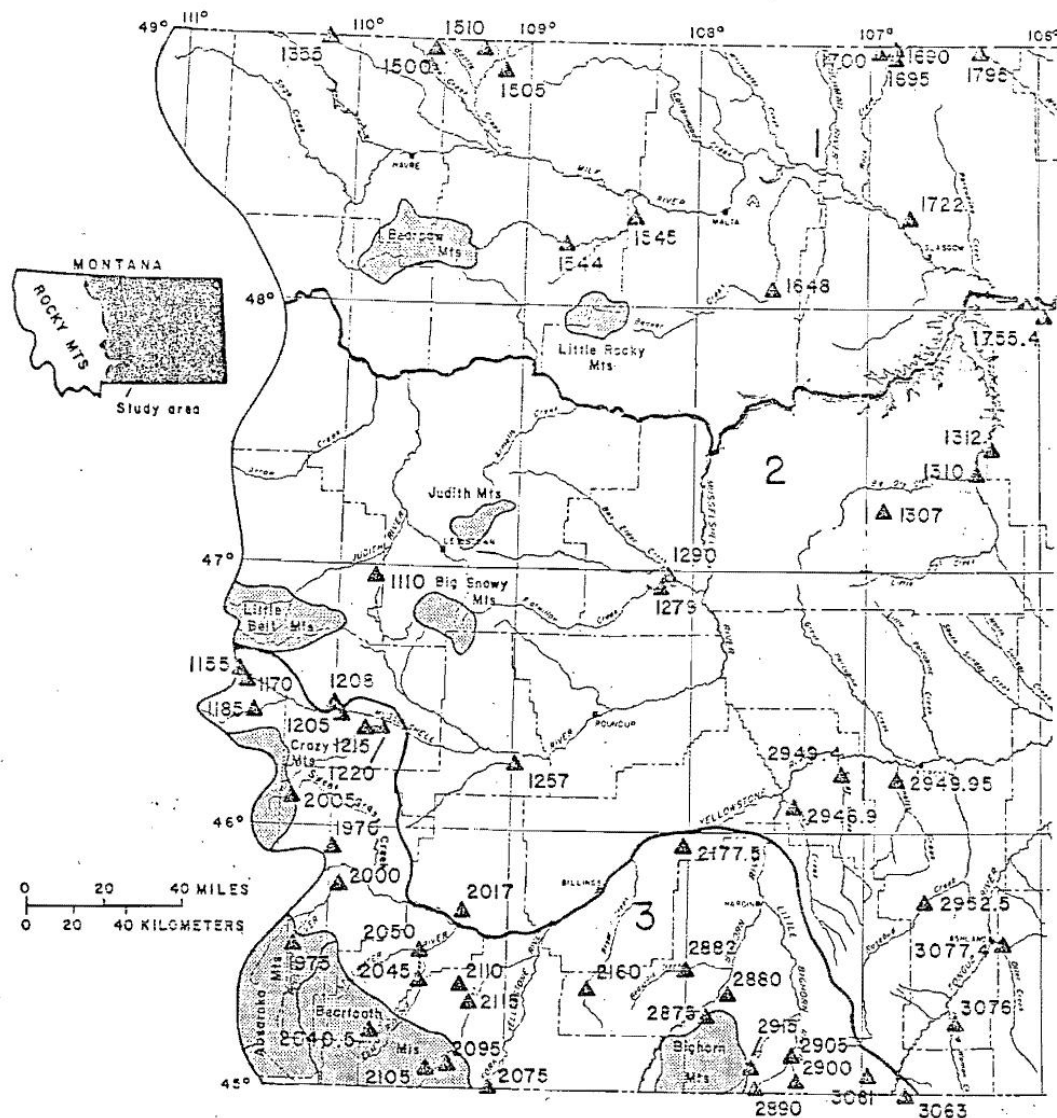
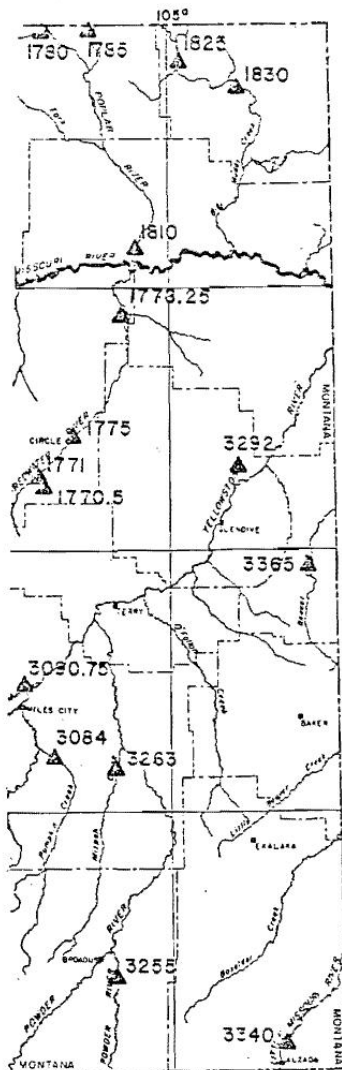


Figure 1.--Location of study area, region boundaries, and streamflow-

The reliability of the adjusted value was expressed in terms of equivalent length of record as shown by the U.S. Water Resources Council (1981). The equivalent record derived from a nearby station is obtained as follows:

$$N_e = \frac{N_1}{1 - \left(\frac{N_2}{N_1 + N_2} \right) \left(r^2 - \frac{(1 - r^2)}{(N_1 - 3)} \right)} \quad (1)$$

EXHIBIT X-16 (cont.)



EXPLANATION

1722

STREAMFLOW-GAGING STATION AND
ABBREVIATED NUMBER--Number has
been abbreviated from 06172200 by
omitting the first two digits (06) and
the last one or two digits if they are
zeros

2

REGION BOUNDARY AND NUMBER

gaging stations selected for mean annual runoff analysis.

where

- N_2 is the equivalent years of record,
- N_1 is the number of years of mean annual flow that occurred concurrently
at the two stations,
- N_2 is the number of years that mean annual flow occurred at the long-record
station but did not occur at the short-record station, and
- r is the correlation coefficient of the flows at the two stations for
concurrent periods.

EXHIBIT X-16 (cont.)

If by using the additional years of record at the correlating station, the equivalent years of record at the station of interest was increased to more than 10 years, then the adjusted value of mean annual runoff was used. This procedure was used to adjust the mean annual runoff at 27 gaging stations. A listing of the 27 gaging stations and the results of the long-term mean annual runoff adjustments are given in table 1.

Multiple regression techniques

Equations for estimating mean annual runoff were developed from multiple-regression analyses of streamflow and basin-characteristics data obtained at streamflow-gaging stations. The data were transformed to logarithms to help ensure a linear relationship among the variables, and regression equations of the following form were derived:

$$\log Q = \log a + b_1 \log B + b_2 \log C + \dots b_m \log M \quad (2)$$

where

Q (dependent variable) is Q_a , the mean annual runoff in cubic feet per second;

a is the multiple-regression constant;

b_1, b_2, \dots, b_m are the regression coefficients; and

B, C, \dots, M are values of the drainage-basin characteristics (independent variables).

After taking antilogarithms, the resulting equations have the following non-linear form:

$$Q = aB^{b_1} C^{b_2} \dots M^{b_m} \quad (3)$$

The regression analyses were performed by digital computer using Statistical Analysis System (SAS) programs (SAS Institute, Inc., 1979). These programs provide various statistical measures of the applicability of the derived regression equations such as standard errors of estimate, coefficients of determination (R^2), and tests for the significance of each independent variable.

In developing equations using basin characteristics, a "maximum R^2 improvement" routine for adding or deleting independent variables was used. The procedure determines the "best" one-independent-variable equation, the best two-independent-variable equation, and so forth until all independent variables have been added to the model. This technique does not necessarily keep the previous independent variables in the equation as additional independent variables are added, if a larger R^2 results. In this study, a variable was included in the model if the test statistic for significance was 5 percent or less. In general, the smaller the test statistic for significance, the more significant is the variable in the equation.

Mean annual runoff analysis

An initial mean annual regression analysis was made for the entire study area. The study area then was divided into three regions based on the topography, climate, and surface geology. The regression residuals (difference between actual mean an-

EXHIBIT X-16 (cont.)

Table 1.--Mean annual runoff adjustments for selected gaging stations
[ft³/s, cubic feet per second]

Station number	Stream name and gaging station number	Years of record (N)	Index station number	Equivalent years of record (N _e)	Unadjusted mean annual runoff (ft ³ /s)	Adjusted mean annual runoff (ft ³ /s)	Coefficient of determination (R ²)
06117000	Checkerboard Creek	9	06120500	35	8.36	8.62	0.88
06120800	Antelope Creek trib. No. 2	5	06115500	11	.91	.54	.74
06121500	Lebo Creek	9	06120500	22	13.2	13.6	.85
06125700	Big Coulee	14	06120500	32	7.38	10.2	.72
06130700	Sand Creek	10	06177500	16	5.19	6.11	.60
06131200	Nelson Creek	7	06131000	28	2.45	2.01	.94
06164800	Beaver Creek above Dix Creek	10	06131000	30	53.3	48.2	.90
06172200	Buggy Creek	10	06111000	12	5.38	5.32	.62
06175540	Prairie Elk Creek	7	06329200	12	20.1	17.3	.74
06177050	East Fork Duck Creek	6	06131000	10	.44	.72	.68
06177100	Duck Creek	6	06131000	19	.91	2.20	.90
06177825	Redwater River	7	06329200	17	49.6	41.8	.98
06183000	Big Muddy Creek	5	06131000	14	61.4	60.5	.88
06197000	Big Timber Creek	11	06200500	27	76.9	75.5	.85
06201700	Hump Creek	6	06125700	12	.24	.15	.92
06210500	West Fork Rock Creek	10	06200500	20	66.5	76.9	.76
06288000	Rotten Grass Creek	5	06216000	10	31.2	36.5	.79
06288200	Beauvais Creek	10	06129000	16	23.6	17.8	.94
06294690	Tullock Creek	8	06306300	13	10.5	10.5	.66
06294940	Sarpy Creek	9	06329200	14	7.54	6.03	.86
06294995	Armells Creek	8	06329200	14	7.08	5.36	.86
06295250	Rosebud Creek	8	06290500	17	48.8	41.8	.72
06306100	Squirrel Creek	7	06131000	18	3.77	3.34	.79
06307600	Hanging Woman Creek	9	06306300	18	4.78	5.04	.86
06308400	Pumpkin Creek	10	06131000	19	16.1	15.8	.67
06309075	Sunday Creek	8	06131000	20	42.8	39.1	.79
06326300	Mizpah Creek	8	06131000	16	17.1	15.2	.71

EXHIBIT X-16 (cont.)

nual runoff and computed mean annual runoff) were plotted on a map and used as a guide in determining the three regions. Drainage divides were used as regional boundaries where feasible.

Separate multiple-regression analyses were then made for each of the three regions. Region 1 contained 17 gaging stations, and drainage area was determined to be the only significant independent variable. Region 2 contained 27 gaging stations, with drainage area, mean annual precipitation, and forest cover index being the significant independent variables. Region 3 contained 29 gaging stations, with drainage area, mean annual precipitation, and main channel slope being the significant independent variables. The final regression equations developed for each region, the standard errors of estimate, and the coefficient of determination (R^2) are given in table 2.

Table 2.--Results of regression analysis for mean annual runoff using basin characteristics

Mean annual runoff (cubic feet per second)		Equations	Average standard error of estimate (SE) (percent)	Coefficient of determi- nation (R^2)
Region 1 (17 stations)				
Q_a	=	$0.044 A^{1.02}$	31	0.94
Region 2 (27 stations)				
Q_a	=	$0.039 A^{0.94}$	64	.85
Q_a	=	$0.0014 A^{0.95} p^{1.25}$	62	.86
Q_a	=	$0.00013 A^{0.99} p^{2.69} (F+10)^{-0.59}$	51	.90
Region 3 (29 stations)				
Q_a	=	$0.426 A^{1.03}$	103	.66
Q_a	=	$0.00053 A^{1.08} p^{2.08}$	43	.92
Q_a	=	$0.00022 A^{1.15} p^{1.75} s^{0.33}$	37	.94

EXHIBIT X-16 (cont.)

LIMITATIONS OF DEFINITION

The estimating relations in this report are known to apply only within the range of variables tested or sampled. Equations were defined from data on streams virtually unaffected by urbanization or any large amount of regulation or diversion, and do not apply to streams subject to those conditions. The range of basin characteristics used is given in table 3. Values outside the ranges listed may not give reliable results.

Table 3.--Range of basin characteristics used

Region (fig. 1)	Drainage area (A) (square miles)	Mean annual precip- itation (P) (inches)	Forest cover (F+10) (percent)	Main channel slope (S) (feet per mile)
1	60.2 - 3,174	--	--	--
2	7.61 - 2,554	11-17	0-48	--
3	23.9 - 1,477	13-55	--	10.7 - 304

Comparing the equations that relate mean annual runoff to drainage area alone shows that the results for Regions 1 and 2 are similar. The equation for Region 3, however, yields mean annual discharges that are approximately 10 times greater for a given size drainage area. If mean annual runoff needs to be estimated for a stream near or on a regional boundary or for a stream that crosses regional boundaries, the discharge needs to be weighted according to respective drainage areas in each region.

ACCURACY OF ESTIMATING RELATIONSHIPS

The accuracy of a regression equation generally is measured by the standard error of estimate. The standard error of estimate is a measure of the standard deviation of the residuals about the regression line and is usually expressed in percentage of the estimated value when log-transformed variables are used. Thus, if the standard error of estimate of a regression equation is 50 percent, about two-thirds of all observed values of the dependent variable will be within 50 percent the estimated value. The standard error of estimate is a measure of how well the regression line fits the data that were used to derive the line and is not necessarily a measure of how well the equation can be used to estimate or predict from data not used in the regression analysis.

The standard error of estimate for each regression equation is given in table 2. These standard errors are smaller than the standard errors of estimate computed for the mean annual runoff analysis by Boner and Buswell (1970). They are also slightly smaller than those determined in channel geometry studies (Omang and others, 1983; Parrett and others, 1983) completed for the same area. The two methods are considered to be reliable, and each can be used to supplement or check the other.

EXHIBIT X-16 (cont.)

CONCLUSIONS

Multiple-regression equations for estimating mean annual runoff at ungaged streams using basin characteristics were developed for three regions in central and eastern Montana. Basin characteristics determined to be important in the various estimating equations were drainage area, mean annual precipitation, forest cover index, and main channel slope. The maximum number of basin characteristics found to be significant in the equation in any region was three. The minimum number of basin characteristics included in any of the equations was one. Drainage area was the most significant basin characteristic in all regions.

The standard error of estimate in Region 1, based on data from 17 stations, was 31 percent using only drainage area in the estimating equation. The standard error of estimate in Region 2, based on 27 stations, was 64 percent using only drainage area. It improved to 62 percent with the addition of mean annual precipitation and to 51 percent with the addition of mean annual precipitation and forest cover index. The standard error of estimate in Region 3, based on 29 stations, was 103 percent using only drainage area. It improved to 43 percent with the addition of mean annual precipitation and to 37 percent with the addition of mean annual precipitation and main channel slope.

Mean annual runoff record at gaging stations with 10 years of record or less was extended based on correlation with a nearby hydrologically similar long-term gaging station. Coefficients of determination and equivalent years of record were determined at 27 gaging stations and used as an indicator of whether or not the short-term record needed to be adjusted.

EXHIBIT X-16 (cont.)

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EXHIBIT X-16 (cont.)

Table 4.--Streamflow and basin characteristics at selected gaging stations

Station number	Station name	Region	Length of equivalent record (years)	Mean annual runoff (cubic feet per second)	Drainage area (square miles)	Mean annual precipitation (p) (inches)	Forest cover (F) (per cent)	Main channel slope (S) (feet per mile)
06111000	Ross Fork near Hobson, Mont.	2	14	14.0	337	17	5.3	40.6
06115500	North Fork Musselshell River near Delpine, Mont.	3	38	12.2	31.4	21	52.4	131
06117000	Checkerboard Creek at Delpine, Mont.	3	35	8.62	23.9	21	50.0	118
06118500	South Fork Musselshell River above Martinsdale, Mont.	3	36	91.3	287	20	46.6	58.7
06120500	Musselshell River at Harlowton, Mont.	3	72	167	1,125	18	34.4	28.9
06120800	Antelope Creek trib. No. 2 near Harlowton, Mont.	2	11	.54	21.2	13	.0	59.4
06121500	Lebo Creek near Harlowton, Mont.	3	22	13.6	59.1	14	.0	54.6
06122000	American Fork below Lebo Creek, near Harlowton, Mont.	3	21	31.0	166	19	10.5	65.8
06125700	Big Coulee near Lavina, Mont.	2	32	10.2	232	14	4.8	24.4
06127900	Flatwillow Creek near Flatwillow, Mont.	2	24	14.3	183	25	42.0	57.4
06129000	Box Elder Creek near Winnett, Mont.	2	17	23.0	684	14	3.9	12.7
06130700	Sand Creek near Jordan, Mont.	2	16	6.11	317	11	.0	17.2
06131000	Big Dry Creek near Van Norman, Mont.	2	39	56.7	2,554	11	.0	19.3
06131200	Nelson Creek near Van Norman, Mont.	2	28	2.01	100	14	.0	12.7
06135500	Sage Creek at Q Ranch, near Wild Horse, Alberta	1	44	10.3	175	13	.0	19.2
06150000	Woodpile Coulee near international boundary	1	49	3.16	60.2	12	.0	11.9
06150500	East Fork Battle Creek near international boundary	1	49	2.92	89.5	12	.0	14.0
06151000	Lyons Creek at international boundary	1	52	2.49	66.7	12	.0	26.3

EXHIBIT X-16 (cont.)

Table 4.--Streamflow and basin characteristics at selected gaging stations--Continued

Station number	Station name	Region	Length of equivalent record (years)	Mean annual runoff (cubic feet per second)	Drainage area (A) (square miles)	Mean annual precipitation (P) (inches)	Forest cover (F) (per cent)	Main channel slope (S) (feet per mile)
06154400	Peoples Creek near Hays, Mont.	1	15	18.3	220	16	.0	26.4
06154500	Peoples Creek near Dodson, Mont.	1	23	32.7	670	15	2.7	20.5
06164800	Beaver Creek above Dix Creek, near Malta, Mont.	1	30	48.2	929	13	4.0	11.5
06169000	Horse Creek at international boundary	1	48	4.49	73.5	13	.0	20.8
06169500	Rock Creek below Horse Creek, near international boundary	1	33	23.5	328	13	.0	12.3
06170000	McEachern Creek at international boundary	1	53	10.8	182	13	.0	20.2
06172200	Buggy Creek near Glasgow, Mont.	1	12	5.32	105	12	.0	35.9
06175540	Prairie Elk Creek near Oswego, Mont.	2	12	17.3	352	14	.0	14.6
06177050	East Fork Duck Creek near Brockway, Mont.	2	10	.72	12.4	14	.0	53.7
06177100	Duck Creek near Brockway, Mont.	2	19	2.20	54.0	13	.0	38.5
06177500	Redwater River at Circle, Mont.	2	44	13.5	547	13	.0	43.9
06177825	Redwater River near Vida, Mont.	2	17	41.8	1,974	14	.0	6.50
06178000	Middle Fork Poplar River at international boundary	1	48	18.6	362	14	.0	15.3
06178500	East Poplar River at international boundary	1	48	16.1	534	16	.0	5.90
06179500	West Fork Poplar River at international boundary	1	22	4.50	139	13	.0	11.5
06181000	Poplar River near Poplar, Mont.	1	38	140	3,174	12	.0	6.43
06182500	Big Muddy Creek at Daleview, Mont.	1	24	15.7	279	15	.0	11.4
06183000	Big Muddy Creek at Plentywood, Mont.	1	14	60.5	850	14	.0	6.40
06197000	Big Timber Creek near Big Timber, Mont.	3	27	75.5	74.9	25	42.9	304

EXHIBIT X-16 (cont.)

Table 4.--Streamflow and basin characteristics at selected gaging stations--Continued

Station number	Station name	Region	Length of equivalent record (years)	Mean annual runoff (cubic feet per second)	Drainage area (A) (square miles)	Mean annual precipitation (P) (inches)	Forest cover (F) (per cent)	Main channel slope (S) (feet per mile)
06197500	Boulder River near Contact, Mont.	3	25	333	226	37	65.3	104
06200000	Boulder River at Big Timber, Mont.	3	33	614	523	30	57.9	55.6
06200500	Sweet Grass Creek above Melville, Mont.	3	43	86.5	63.8	33	48.7	106
06201700	Hump Creek near Reed Point, Mont.	2	12	.15	7.61	15	23.0	131
06204050	West Rosebud Creek near Roscoe, Mont.	3	17	129	52.1	55	16.0	186
06204500	Rosebud Creek near Absarokee, Mont.	3	34	407	394	32	29.0	123
06205000	Stillwater River near Absarokee, Mont.	3	47	968	975	32	54.6	73.3
06207500	Clarks Fork Yellowstone River near Belfry, Mont.	3	61	955	1,154	17	60.9	76.3
06209500	Rock Creek near Red Lodge, Mont.	3	48	174	124	40	40.0	243
06210500	West Fork Rock Creek near Red Lodge, Mont.	3	20	76.9	66.9	36	60.0	191
06211000	Red Lodge Creek above Cooney Reservoir, near Boyd, Mont.	3	43	62.3	143	22	30.0	98.0
06211500	Willow Creek near Boyd, Mont.	3	43	29.2	53.3	20	15.3	91.1
06216000	Pryor Creek at Pryor, Mont.	3	16	40.2	117	16	23.0	116
06217750	Fly Creek at Pompeys Pillar, Mont.	3	13	38.1	285	13	5.5	10.7
06267500	Soap Creek near St. Xavier, Mont.	3	19	30.6	98.3	18	2.8	282
06288000	Rotten Grass Creek near St. Xavier, Mont.	3	10	36.5	147	16	11.0	45.1
06288200	Beauvais Creek near St. Xavier, Mont.	3	16	17.8	100	15	.0	70.2
06289000	Little Bighorn River at State line, near Wyola, Mont.	3	43	155	193	20	87.0	196
06290000	Pass Creek near Wyola, Mont.	3	18	36.1	111	22	26.8	127

EXHIBIT X-16 (cont.)

Table 4.--Streamflow and basin characteristics at selected gaging stations--Continued

Station number	Station name	Region	Length of equivalent record (years)	Mean annual runoff (cubic feet per second)	Drainage area (A) (square miles)	Mean annual precipitation (P) (inches)	Forest cover (F) (per cent)	Main channel slope (S) (feet per mile)
06290500	Little Bighorn River below Pass Creek, near Wyola, Mont.	3	41	214	428	20	45.9	135
06291500	Lodge Grass Creek above Willow Creek diversion, near Wyola, Mont.	3	35	49.9	80.7	22	33.3	238
06294690	Tullock Creek near Big-horn, Mont.	2	13	10.5	446	14	14.0	15.0
06294940	Sarpy Creek near Hysham, Mont.	2	14	6.03	453	14	35.0	12.9
06294995	Armells Creek near Forsyth, Mont.	2	14	5.36	370	14	21.0	12.5
06295250	Rosebud Creek near Colstrip, Mont.	2	17	41.8	799	15	48.0	10.3
06306100	Squirrel Creek near Decker, Mont.	3	18	3.34	33.6	15	13.0	52.0
06306300	Tongue River at State line, near Decker, Mont.	3	22	496	1,477	16	37.0	76.2
06307600	Hanging Woman Creek near Birney, Mont.	2	18	5.04	470	14	17.0	18.4
06307740	Otter Creek at Ashland, Mont.	2	13	7.19	707	15	43.0	15.6
06308400	Pumpkin Creek near Miles City, Mont.	2	19	15.8	697	15	16.0	11.9
06309075	Sunday Creek near Miles City, Mont.	2	20	39.1	714	12	.0	7.70
06325500	Little Powder River near Broadus, Mont.	2	20	39.6	1,974	15	7.4	8.00
06326300	Mizpah Creek near Mizpah, Mont.	2	16	15.2	797	14	4.3	8.00
06329200	Burns Creek near Savage, Mont.	2	17	6.82	233	13	.0	27.2
06334000	Little Missouri River near Alzada, Mont.	2	49	77.2	904	16	8.0	9.27
06336500	Beaver Creek at Wibaux, Mont.	2	34	21.5	351	14	.0	5.00

EXHIBIT X-17

MURPHY RIGHT STREAMS

In 1969, the Montana Legislature enacted legislation granting the Montana Fish and Game Commission authority to appropriate unappropriated waters on twelve streams to maintain instream flows for the preservation of fish and wildlife habitat. Rep. James E. Murphy was the sponsor. The Legislature established specific reaches of the following sources: Big Spring Creek in Fergus County; Blackfoot River in Missoula and Powell counties; Flathead River and Middle Fork Flathead River in Flathead County; South Fork Flathead River in Flathead and Powell counties; Gallatin River and West Gallatin River in Gallatin County; Madison River in Madison and Gallatin counties; Missouri River in Broadwater, Lewis and Clark and Cascade counties; Rock Creek in Granite and Missoula counties; Smith River in Cascade and Meagher counties; and the Yellowstone River in Stillwater, Sweetgrass and Park Counties. The priority dates are 1970 or 1971.

89-801 to 89-801.2, 89-802 to 89-804. (7093 to 7096) Repealed.

Repeal

Sections 89-801 to 89-801.2, 89-802 to 89-804 (Secs. 1 to 4, pp. 130, 131, L. 1885; Sec. 1, p. 152, L. 1901; Secs. 1, 2, Ch. 228, L. 1921; Secs. 1 to 3, Ch. 345, L. 1969), relating to right to appropriate water, were repealed by Sec. 46, Ch. 452, Laws 1973. For new law, see secs. 89-880, 89-891 and 89-892.

Compiler's Notes

The Montana Water Use Act preserves "existing rights" and future determinations and adjudications will require reference to sections repealed by the 1973 law. The text of repealed sections 89-121 to 89-123, 89-802 to 89-804, 89-807 to 89-812, 89-814 to 89-816, 89-829 to 89-842, 89-844, 89-845, 89-850, 89-852 to 89-855, 89-857 to 89-864, 89-2912, 89-2913 (a) to (g), 89-2919 to 89-2925, and 89-2935 may be found in bound Volume 6, Part 1. The text of repealed sections 89-801 to 89-801.2, 89-813, 89-847 to 89-849, 89-851, and 89-2913 (h) is as follows:

89-801. What waters may be appropriated. (1) The right to the use of the unappropriated water of any river, stream, ravine, coulee, spring, lake, or other natural source of supply may be acquired by appropriation, and an appropriator may impound flood, seepage, and waste waters in a reservoir and thereby appropriate the same.

(2) But the unappropriated waters of the streams and portions of streams hereafter named shall be subject to appropriation by the fish and game commission of the state of Montana in such amounts only as may be necessary to maintain stream flows necessary for the preservation of fish and wildlife habitat. Such uses

shall have a priority of right over other uses until the district court in which lies the major portions of such stream or streams shall determine that such waters are needed for a use determined by said court to be more beneficial to the public. The unappropriated water of other streams and rivers not named herein may be set aside in the future for appropriation by the fish and game commission upon consideration and recommendation of the water resources board, fish and game commission, state soil conservation committee, the state board of health and approval of the legislature.

→ (a) Big Spring creek in Fergus county from its mouth in T17N, R16E, Sec. 26 to the state fish hatchery in T14W, R19E, Sec. 5.

→ (b) Blackfoot river in Missoula and Powell counties from its mouth in T13N, R18W, Sec. 21 to the mouth of its North Fork in T14N, R12W, Sec. 9.

→ (c) Flathead river in Flathead county from its mouth in T27N, R20W, Sec. 34 to the Canadian border in T37N, R22W, Sec. 4 & 5, including the section commonly known as the North Fork of the Flathead river.

→ (d) Gallatin river in Gallatin county from its mouth in T2N, R2E, Sec. 9 to the junction of its East Fork in T2N, R3E, Sec. 27.

→ (e) Gallatin river in Gallatin county (commonly called the West Gallatin) from the Beck & Border ditch intake in T2S, R4E, Sec. 14 to where it leaves the Yellowstone Park boundary in T9S, R5E, Sec. 18.

→ (f) Madison river in Madison and Gallatin counties from its mouth in T2N,

R2E, Sec. 17 to Hebgen dam in T11S, R3E, Sec. 23.

→ (g) Missouri river in Lewis and Clark, Broadwater and Cascade counties from its junction with the Smith river in T19N, R2E, Sec. 9 to Toston dam in T4N, R3E, Sec. 7.

→ (h) Rock creek in Granite and Missoula counties from its mouth in T11N, R17W, Sec. 12 to the junction of its East and West Forks in T6N, R15W, Sec. 31.

→ (i) Smith river in Cascade and Meagher counties from the mouth of Hound creek in T17N, R3E, Sec. 20 to the Fort Logan bridge in T11N, R5E, Sec. 31.

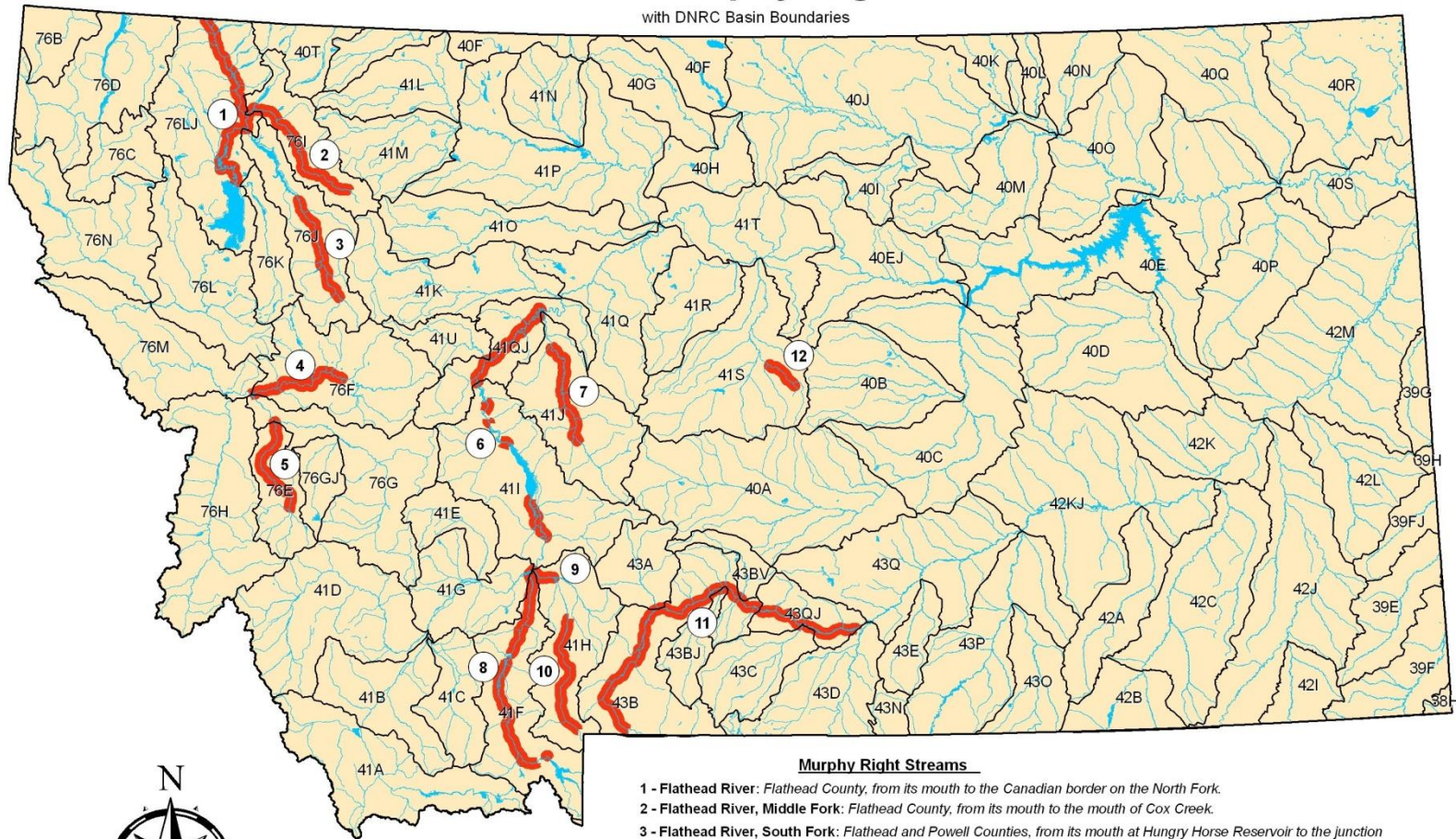
→ (j) Yellowstone river in Stillwater, Sweetgrass and Park counties from the North-South Carbon-Stillwater county lines in T3S, R21E, Sec. 10 to where it leaves the Yellowstone Park boundary in NT9S, R8E, Sec. 23.

→ (k) Middle Fork Flathead river in Flathead county from its mouth in T31N, R19W, Sec. 7 to the mouth of Cox creek in T27N, R12W, (a nonsectioned township).

→ (l) South Fork Flathead river in Flathead and Powell counties from its mouth at Hungry Horse reservoir in T26W, R16W, Sec. (unknown), to its source at the junction of Danaher and Youngs creeks in T20W, R13W, Sec. 36.

Montana's Murphy Right Streams

with DNRC Basin Boundaries



Murphy Right Streams

- 1 - Flathead River: Flathead County, from its mouth to the Canadian border on the North Fork.
- 2 - Flathead River, Middle Fork: Flathead County, from its mouth to the mouth of Cox Creek.
- 3 - Flathead River, South Fork: Flathead and Powell Counties, from its mouth at Hungry Horse Reservoir to the junction of Danaher and Youngs Creeks.
- 4 - Blackfoot River: Missoula and Powell Counties, from its mouth to the mouth of its North Fork.
- 5 - Rock Creek: Granite and Missoula Counties from its mouth to the junction of the East and West Forks of Rock Creek.
- 6 - Missouri River: Lewis and Clark, Broadwater and Cascade Counties from its junction with Smith River to Toston Dam.
- 7 - Smith River: Cascade and Meagher Counties from the mouth of Hound Creek to the Fort Logan bridge.
- 8 - Madison River: Madison and Gallatin County from its mouth to Hebgen Dam.
- 9 - Gallatin River: Gallatin County from its mouth to the junction of the East Fork.
- 10 - West Gallatin River: Gallatin County from the Beck and Border ditch intake to Yellowstone National Park boundary.
- 11 - Yellowstone River: Stillwater, Sweetgrass and Park Counties from the North-South Carbon Stillwater County lines to where it leaves Yellowstone National Park boundary.
- 12 - Big Spring Creek: Fergus County, from its mouth to the state fish hatchery.



0 25 50 100 Miles

Matt Bell, Montana DNRC August 9th, 2010

EXHIBIT X-18

MUNICIPAL WATER NEEDS

MEMORANDUM

TO: Tim Hall, Legal Counsel
FROM: Steve Holnbeck, Hydrologist
SUBJECT: Proposed Procedure to Quantify Municipal and Domestic Claims for Water
DATE: September 26, 1985

Currently there is no specific procedure to review water claims made by communities. The water rights procedure manual indicates that claims for municipal water shall be evaluated on a case-by-case basis. In principal this is a valid policy but more specific direction would be desirable.

Recently claims for municipal water for the community of Philipsburg were objected to by the Department of Natural Resources and Conservation (DNRC). It is likely that future objection for other communities will occur.

At your request, Laurence Siroky and I looked into the matter of quantifying the needs of typical municipalities from the DNRC perspective.

Our investigation utilized the City of Philipsburg for an example but the methods developed could be applied for any community.

At present, the standards are being developed. Information in this paper is considered tentative.

Background

Water demand information is well documented in literature. Standards have been developed to evaluate the necessary requirements. A rational procedure is thus available to determine the use of water by municipalities.

Breakdown of Requirements

Municipal and residential water consumption can be separated into the following categories:

1. Yearly average consumption
2. Maximum daily use
3. Maximum hourly use
4. Municipal fire protection requirements
5. System capacity
6. System efficiency
7. Operating records

Investigation of these seven categories will enable the determination of a reasonable rate and volume for the community making a claim. The information will also indicate which category results in a limiting condition with respect to rate and volume.

Yearly Average Consumption

Expressed in gallons per capita per day (gpcd), this figure is typically used to compute the

EXHIBIT X-18 (Cont.)

volume of water used by a city or town. When multiplied by the population, the total volume over a given period of time can be quantified.

In the case of the Yellowstone Reservations process, it was decided that a reasonable figure of 212 gpcd be used for municipalities claiming reserved water.

Gehm and Bregman¹ contains information that shows residential and total community water use for four Montana cities as follows:

<u>City</u>	<u>Residential Only</u> <u>gpcd</u>	<u>Total Per Capita</u> <u>gpcd</u>
Great Falls	137	228
Missoula	214	429
Billings	119	208
Butte	212	300

Figures reported are for the use and not necessarily the point of withdrawal. Total per capita figures include all industrial and other uses, in addition to the residential use.

In the case of small communities, the figures for residential use would be more appropriate, unless it could be demonstrated otherwise.

A tentative figure of 250 gpcd is proposed to determine the annual volume of water to claim. If a particular community can demonstrate a different figure, it could be used in place of the proposed figure.

Maximum Daily and Hourly Use

Within the day water demand varies. Hammer² reported the following data on these parameters:

	Variations in Residential Water Consumption (gpcd)	
	Range	Average
Maximum Daily Use	160 to 520+	230
Maximum Hourly Use	200 to 1300+	390

From a conservative standpoint, the high end of the range is proposed for use in assessing a water claim. This equals 520 gpcd for maximum daily use and 1300 gpcd for maximum hourly use.

¹ Gehm, H.W. and Jacob I. Bregman, Handbook of Water Resources and Pollution Control. Van Nostrand Reinhold Company, 1976, pp. 63-64.

² Hammer, Mark J., Water and Wastewater Technology. John Wiley and Sons, Inc., p. 173.

EXHIBIT X-18 (Cont.)

Municipal Fire Protection Requirements

Standards have been developed by the Insurance Services Office (ISO)³, Municipal Survey Service⁴ for determining fire protection needs. Criteria have also been developed by the American Water Works Association (AWWA) and the National Board of Fire Underwriters (NBFU).

The proposed method to assess fire flow is based on small community conditions. Under no cases should the fire flow be less than 500 gallons per minute.

An equation by ISO relates fire flow to total floor area and type of construction. The equation is:

$$F = 18C(A)^{0.5} \quad (1)$$

Where:

F = required fire flow in gallons per minutes (gpm)

C = coefficient based on type of construction

A = total floor area of typical residence (ignore basement)

Assuming a total residential floor area of 3,000 square feet and wood frame construction (C=1.5) yields a required fire flow of 1,479 gpm. The calculated fire flow is reduced by 25 percent for light fire loading conditions, ISO (1772). Light fire loading is considered to be occupancies such as all forms of housing, churches, schools, offices and other public buildings. Thus, the final required fire flow is approximately 1,110 gpm.

A second procedure presented by NBFU relates population to required fire flow. Based on this procedure, the required flow is 1200 gpm for a population of 1,200 as in the case of Philipsburg.

ISO (1972) indicates that a fire flow of 1200 gpm would satisfy criteria for one and two-family residential areas not exceeding two stories in height with the distance between dwelling units between 11 and 30 feet.

According to ISO (1973) the required duration for a fire flow of 2,500 gpm or less is 2 hours.

Thus, a fire flow of 1,200 gpm for 2 hours for the communities of Philipsburg is satisfactory.

³ Grading Schedule for Municipal Fire Protection, Insurance Services Office, Municipal Survey Service, 160 Water Street, New York, N.Y. 10038, 1973.

⁴ Guide for Determination of Required Fire Flow, Insurance Services Office, June, 1972.

EXHIBIT X-18 (Cont.)

System Capacity

In cases where information on the water distribution system is available, a determination can be made on the system capacity.

Typically the system needs to be described in terms of pipe size, condition, material and length. If the system is gravity fed, elevations at the inlet and outlet to the system are needed to determine the total available static head. Reservoirs, water towers and standpipes must be described in terms of the water surface elevations for those facilities. A pressure system containing booster or lift pumps must include information on the capacity of the pump (generally in the form of a pump curve).

Hydraulic calculations can then be performed to determine the capacity of the distribution system.

System Efficiency

Once the water supply is confined in the distribution system (typically a pipeline) the efficiency is quite high (90~95 percent). However, many diversions begin with an open ditch, flume or other structure that may be of much lower efficiency.

For this condition, the compute capacity for the system may be increased on the basis of an efficiency factor. Determination of the system efficiency is accomplished by obtaining information on the layout and condition of the system from point of diversion to at least the point of distribution. Point of distribution is defined in this paper as the point where the main pipeline begins to branch into many small service lines.

Operating Records

Records are generally kept at chlorination stations, pump houses or lift stations where there is a need to monitor flow rate. These records can be used to verify, support or dispute proposed water claims.

Application of Procedure to City of Philipsburg

At this time, the City of Philipsburg has provided some information on their water distribution system. We are in the process of evaluating that information for determining the system capacity.

In the meantime, the following example is given to demonstrate how the rate and volume would be quantified, assuming no additional information.

Peak Flow Rate

The maximum flow rate is assumed to be the sum of the maximum hourly flowrate plus the fire flow requirement. This is a conservative assumption in that the two events are treated as though they happened concurrently.

EXHIBIT X-18 (cont.)

$$\begin{aligned}\text{Max. daily} &= \frac{1,300 \text{ gpcd} \times 1,200 \text{ pop.}}{24 \text{ hr/day} \times 60 \text{ min/hr} \times 448.8 \text{ gpm/cfs}} \\ \text{in cubic feet/sec (cfs)} &= 2.41 \text{ cfs} \\ \text{Fire demand} &= 1,200 \text{ gpm by ISO and NBFU} \\ &= 1,200 \text{ gpm} / 448.8 \text{ gpm/cfs} = 2.67 \text{ cfs} \\ \text{Total peak rate} &= 2.41 + 2.67 = 5.08 \text{ cfs}\end{aligned}$$

Volume

Total volume is equal to the average daily per capita use multiplied by the population. In the case of Philipsburg, the volume is computed as follows:

$$\text{Volume} = \frac{250 \text{ gpcd} \times 1200 \text{ pop} \times 365 \text{ days}}{325,900 \text{ gals/acre-foot}} = 336 \text{ acre-feet}$$

Additional volume for storage tanks in the system would be added to this figure.

EXHIBIT XI-1

AMENDMENT FORM

http://dnrc.mt.gov/wrd/water_rts/adjudication/adj_forms/amendment_form.pdf

AMENDMENT TO STATEMENT OF CLAIM

Claim Number(s): _____

Owner(s): _____

I make the following amendment(s) to the above statement of claim(s):

(Complete only those sections that require amendment.)

1. **Purpose (use):** _____

- a. If irrigation, method of irrigation use ☐ Sprinkler ☐ Flood ☐ Water spreading
☐ Subirrigation ☐ Natural Overflow

b. If domestic, number of households served: _____

c. If stock, total number and type of livestock served: _____

2. **Source of Water:** _____ **Tributary of** _____

3. **Point of Diversion:** County - _____ ☐ See attachment
____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
Subdivision _____

☐ Replaces claimed information ☐ Supplements claimed information ☐ Addendum included

If the P.O.D is being amended, attach a map showing all points of diversion for this water right.

4. **Period of Diversion:** _____

(Month/Day TO Month/Day)

5. **Means of Diversion:** ☐ Well ☐ Instream Use ☐ Dam
☐ Headgate ☐ Pump: Capacity - _____ gpm
☐ Other - _____

6. **Means of Conveyance:** ☐ Ditch ☐ Pipeline ☐ Instream Use
☐ Other - _____

7. **Place of Use:** County - _____ ☐ See attachment
____ acres ____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ acres ____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ acres ____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ acres ____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ acres ____ Lot ____ Block ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ ____ $\frac{1}{4}$ Section ____ T ____ R ____
____ **Total Acres** Subdivision _____

☐ Replaces claimed information ☐ Supplements claimed information ☐ Addendum included

If the P.O.U. is being amended, attach a map showing entire place of use for this water right.

Exhibit XI-1 (cont.)

8. Flow Rate Claimed: _____
☐ cubic feet per second
☐ gallons per minute
☐ miner's inches

9. Volume Claimed: _____ acre-feet per year

10. Period(s) of Use: _____
(Month/Day TO Month/Day)

11. Priority Date: (date of first use) _____
(Month/Day/Year)

12. Type of Historical Right: ☐ Decreed Right
☐ Filed Appropriation Right
☐ Use Right

**Please attach proof of
priority date or type of right.**

13. Reasons for Amendment: _____

14. Comments: _____

15. Notarized Statement Signed by Owner: ☐ See attachment
I, having been duly sworn, depose and say that I, being of legal age and being the owner of this claim of existing water right know the contents of this amendment and that the matters and things stated there are true and correct. **(All current owners of the right as listed in the DNRC centralized record system are required to sign.)**

Typed or Printed Name

Signature Date

Typed or Printed Name

Signature Date

STATE OF MONTANA

County of _____

Subscribed and sworn before me this _____ day of _____, _____

Notary Public for the State of Montana

(Notary seal)

Notary's Printed Name

Residing at: _____

My commission expires: _____

EXHIBIT XI-2

AMENDMENT AGREEMENT FORM

http://dnrc.mt.gov/wrd/water_rts/adjudication/adj_forms/amendment_agreement.pdf

AMENDMENT AGREEMENT

Water Right: _____

The notarized statement below is provided to show agreement with the amendment(s) submitted
by water right co-owner _____ received by
the DNRC on _____.

Notarized Statement Signed by Owner:

I, having been duly sworn, depose and say that I, being of legal age and being the owner of this claim of
existing water right know the contents of this amendment and that the matters and things stated there are
true and correct. *(All current owners of the right as listed in the DNRC centralized record system are required
to sign.)*

Typed or Printed Name

Signature

Date

Typed or Printed Name

Signature

Date

STATE OF MONTANA

County of _____

Subscribed and sworn before me this _____ day of _____, _____

Notary Public for the State of Montana

(notary seal)

Notary's Printed Name

Residing at: _____

My commission expires: _____

EXHIBIT XI-3

REQUEST TO WITHDRAW STATEMENT OF CLAIM FORM

http://dnrc.mt.gov/wrd/water_rts/adjudication/adj_forms/request_to_withdraw.pdf

REQUEST TO WITHDRAW STATEMENT OF CLAIM

I/We, _____ hereby request the withdrawal of my/our Statement of
Claim number _____.

The reason for this request is:

_____ I/We have an existing right which is exempt from filing.

_____ This claim was for a use of water after July 1, 1973.

_____ I/We have no existing water right to claim.

_____ Other:

(Date Signed)

(Signature of Claimant)

(Date Signed)

(Signature of Claimant)

(All current owners of the right listed in the DNRC centralized record system are required to sign.)

STATE OF MONTANA

COUNTY OF _____

This instrument was signed and acknowledged before me, a Notary Public for the
State of Montana on the _____ day of _____, _____ by

_____.

(Signature of Notary Public)

(SEAL)

(Printed name of Notary Public)

Notary Public for the State Of Montana,

Residing at _____
(City and State of Residence)

My Commission Expires: _____
(Month/Day/Four digit year)

EXHIBIT XI-4

WITHDRAWAL AGREEMENT FORM

http://dnrc.mt.gov/wrd/water_rts/adjudication/adj_forms/withdrawal_agreement.pdf

WITHDRAWAL AGREEMENT

Water Right: _____

The notarized statement below is provided to show agreement with the Request to Withdraw

Statement of Claim submitted by water right co-owner _____

received by the DNRC on _____.

Notarized Statement Signed by Owner:

I, having been duly sworn, depose and say that I, being of legal age and being the owner of this claim of existing water right know the contents of this request to withdraw statement of claim and that the matters and things stated there are true and correct. *(All current owners of the right as listed in the DNRC centralized record system are required to sign.)*

Typed or Printed Name

Signature

Date

Typed or Printed Name

Signature

Date

STATE OF MONTANA

County of _____

Subscribed and sworn before me this _____ day of _____, _____

Notary Public for the State of Montana

(notary seal)

Notary's Printed Name

Residing at: _____

My commission expires: _____

EXHIBIT XII-1

AUTOMATED PROCESS FOR APPLYING STANDARDS

REVIEW ABSTRACT PROGRAM AND DECREE PROGRAM

The review abstract program is a working document program. The program prints comparisons, all remark codes and exact text, values before and after standards, keep flags, canned text under certain criteria, and also prints error/warning messages and editing comments.

The decree program is a finished document program. The program prints, in the same order as the review abstract program, most remarks in full text (remark codes are not printed and abbreviated text remarks are converted), canned text under certain criteria.

1. General Information (All Uses):

If the flow/volume value equals zero or some value with no keep flag, then programmed remarks are printed (i.e., FR01 indicates a computer generated remark) and stored by standards.

If any flow/volume value (including zero) has a keep flag, then no generated computer remarks are printed for that element.

Skip a line between remarks whose ID numbers are not consecutive, or have different ID code letters.

Print any remark beginning with double asterisks so the asterisks stand out in the margin.

Flow rate should be expressed in either gallons per minute (gpm) or cubic feet per second (cfs) units. Flow rates of less than one cfs should be converted into gpm units. Volume should be expressed in units of acre-feet per year. (NOTE: review prints it, standards stores it, decree reads it)

Review program prints all water rights. Decree program prints only water rights with "W", "O" and "X" prefix ("Z", "J", and "U" prefixes and all new appropriations prefixes will be suppressed from decree).

Review abstract program prints abbreviated remarks in abbreviated format. Decree program prints full text of remark.

Edit Check is the error/warning message portion of the review abstract for a basin or group of water numbers.

2. VI.E.2.

Computer prints "GOVT" next to a lot number when a lot number is part of a POD and/or POU legal land description and is not accompanied by a subdivision (SB) remark.

EXHIBIT XII-1 (cont.)

3. VI.F.5. Interbasin Transfer Claims

In the POU basin, the claim will only be noticed. See Figure VI-5 for format and wording.
(NOTE: applies only to decree program)

4. VI.H.3.

When a Y or N reservoir record exists, print review abstract in following order:

- reservoir designation
- onstream or offstream designation
- legal land description
- maximum capacity, dam height, and surface area
- reservoir/lake name, if any, will be printed

When a R reservoir record exists, print review abstract in following order:

- reservoir designation
- R designation
- legal land description
- reservoir/lake name will be printed under source name

Example: SOURCE: MAD DOG CREEK
 SOURCE TYPE: SURFACE WATER
 RESERVOIR/LAKE NAME: MILLER RESERVOIR

NOTE: review program - prints all reservoir records
 decree program - prints reservoir record only if Y or N
 - prints reservoir/lake name

5. VI.J.2.

Time of day as part of priority date will be suppressed.
(NOTE: applies to review and decree programs)

6. VII.B.3.b., VIII.B.3.b., IX.A.3.a., X.B.3.b. Onstream Reservoirs

Criteria: all uses
 zero flow rate
 no keep flag
 onstream reservoir ("N" reservoir code)
 filed or use right

Computer prints:

NO FLOW RATE HAS BEEN DECREED FOR THIS USE FROM THIS
ONSTREAM RESERVOIR.

(NOTE: remark not stored in computer database)

EXHIBIT XII-1 (cont.)

7. VII.B.3.b. Irrigation Flow Rate

Criteria: method of irrigation type = D

zero flow rate
no keep flag
no onstream reservoir
filed or use right

Computer prints:

NO FLOW RATE HAS BEEN DECREED BECAUSE THIS USE CONSISTS OF
DIRECT FLOW WATER SPREADING.

(NOTE: remark not stored in computer data base)

8. VII.B.3.b. Irrigation Flow Rate

Criteria: method of irrigation = N

zero flow rate
no keep flag
no onstream reservoir
filed or use right

Computer prints:

NO FLOW RATE HAS BEEN DECREED FOR THIS USE OF NATURAL
SUBIRRIGATION.

(NOTE: remark not stored in computer data base)

9. VII.B.3.b. Irrigation Flow Rate

Criteria: method of irrigation = O

zero flow rate
no keep flag
no onstream reservoir
filed or use right

Computer prints:

NO FLOW RATE HAS BEEN DECREED FOR THIS NATURAL OVERFLOW
METHOD OF IRRIGATION.

(NOTE: remark not stored in computer data base)

10. VII.C.3.a. Irrigation Volume

Criteria: zero volume

no keep flag
any type of right (including decreed rights)

Computer prints:

THE TOTAL VOLUME OF THIS WATER RIGHT SHALL NOT EXCEED THE
AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE.

(NOTE: remark not stored in computer data base)

11. VII.D.1.a.

Computer derives total acres under "Place Of Use" on worksheets and abstracts by
adding the individual parcel acres.

(NOTE: applies only to review and decree program)

EXHIBIT XII-1 (cont.)

12. VII.E.2.

Based on the data in the examination worksheet supplemental rights statements, the computer relates all supplemental irrigation rights and prints the following remark.

THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE SUPPLEMENTAL WHICH MEANS THE RIGHTS HAVE OVERLAPPING PLACES OF USE. THE RIGHTS CAN BE COMBINED TO IRRIGATE ONLY OVERLAPPING PARCELS OF THE CLAIMANT'S TOTAL 99999.99 ACRES. EACH RIGHT IS LIMITED TO THE FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE.

W000000-00, W000000-00, W000000-00, W000000-00.

(NOTE: Remark is not stored in computer data base, but data in the supplemental rights statement on the examination worksheet is stored. Review prints acres and W numbers, decree program prints full text.)

13. VII.F.3.b.

"J" numbers will not be requested in decree program. Only W, O and X will be printed in decree.

14. IX.A.3.a. Stock Flow Rate

Criteria: use = ST

zero flow rate

no keep flag

no onstream reservoir (if N, go to #15)

Computer prints:

NO FLOW RATE HAS BEEN DECREED BECAUSE THIS USE CONSISTS OF STOCK DRINKING DIRECTLY FROM THE SOURCE, OR FROM A DITCH SYSTEM.

(NOTE: remark not stored in computer data base)

15. IX.B.1. Stock Volume

Criteria: use = ST

zero volume

no keep flag

Computer prints:

THIS WATER RIGHT INCLUDES THE AMOUNT OF WATER CONSUMPTIVELY USED FOR STOCKWATERING PURPOSES AT THE RATE OF 30 GALLONS PER DAY PER ANIMAL UNIT. ANIMAL UNITS SHALL BE BASED ON REASONABLE CARRYING CAPACITY AND HISTORICAL USE OF THE AREA SERVICED BY THIS WATER SOURCE.

(NOTE: remark not stored in computer data base)

EXHIBIT XII-1 (cont)

16. X.B.3.c.

Criteria: use = FW, WI, RC, or NV

zero flow rate

zero volume

no keep flag

Computer prints:

THE FLOW RATE AND VOLUME ARE LIMITED TO THE MINIMUM AMOUNTS
NECESSARY TO SUSTAIN THIS PURPOSE. THIS RIGHT SHALL CONTINUE
TO BE UTILIZED IN ACCORDANCE WITH HISTORICAL PRACTICES.

(NOTE: remark not stored in computer)

17. X.B.3.d.

Criteria: use = MN

zero volume

no keep flag

Computer prints:

THIS WATER RIGHT IS LIMITED TO THE VOLUME OF WATER
HISTORICALLY USED FOR MINING PURPOSES.

(NOTE: remark not stored in computer)

18. X.B.3.f.

Criteria: use = FP

zero flow rate

zero volume

no keep flag

Computer prints:

THE FLOW RATE AND VOLUME OF THIS WATER RIGHT ARE LIMITED TO
THE MINIMUM AMOUNTS NECESSARY FOR FIRE PROTECTION
PURPOSES.

(NOTE: remark not stored in computer)

19. XI.E.4.

Computer prints terminated claim abstract based on "O" prefix.

- Suppress the printing of 'canned' remarks for flow rate and volume.
- Print only TC and GI remarks under General Examination Remarks.
- Suppress printing:
 - Type of irrigation system
 - Source type
 - Type of right
- Print all other remarks under Unpublished Information.

(NOTE: review program - all four indents apply
decree program - only indents 1, 2, and 3 apply)

EXHIBIT XII-1 (cont.)

STANDARDS PROGRAM

The standards program is an update program for each water right and shows changes, if any, to the flow rate, volume and remarks. This program also formulates error messages when standards couldn't apply. The only output for this program are indexes.

1. General Information (All Uses)

Carry all applied standards or any corrections of flow rate and volume to the water right record, as well as corresponding purpose and diversion records.

Carry any corrections of period of use from purpose record to all diversion records.

Renumber parcel records to consecutive order if needed.

Flow rate should be expressed in either gallons per minute (gpm) or cubic feet per second (cfs) units. Flow rates of less than one cfs should be converted into gpm units. Volume should be expressed in units of acre-feet per year. (NOTE: review prints it, standards stores it, decree reads it)

Check water right rates and volumes against purpose record rates and volumes, diversion rates, and well rates, and change purpose records flow and volume values to match. Also change period of diversions to match purpose period of use.

As of 11/90, the standards program no longer applies to the period of use.

2. VII.B.3.a. Irrigation Flow Rate

Criteria: decreed right

flow rate > 33.7 gpm/acre

no keep flag

Computer prints:

FR51THE CLAIMED FLOW RATE EXCEEDS THE 17 GPM PER ACRE
GUIDELINE AND CANNOT BE CONFIRMED DUE TO LACK OF DATA. THE
FLOW RATE EQUALS _____ GPM PER ACRE.

(NOTE: review prints it, standards stores it, decree reads it)

EXHIBIT XII-1 (cont.)

3. VII.B.3.b. Irrigation Flow Rate Criteria: filed or use right
flow rate > 17 gpm/acre
no keep flag

Computer action:

- a. flow rate reduced (either in cfs or gpm) to 17 gpm/acre. Flows greater than 448.8 gpm will be listed as gpm or cfs, and those less than 1 cfs will be listed as gpm.
- b. when flow is reduced, computer adds the following remark:

FR01THE FLOW RATE OF THIS WATER RIGHT HAS BEEN REDUCED
TO THE 17 GPM PER ACRE GUIDELINE. THE FLOW RATE MAY BE
CONTESTED BY PROPER OBJECTION.
(NOTE: review prints it, standards stores it, decree reads it)
- c. when flow is reduced, computer will assign a change flow flag, i.e., asterisks, if not already done.
- d. on review abstract claimed flow rate and standard flow rate.

4. VII.C.2.d., VIII.C.2.d., IX.B.2., X.B.2.d. Feasibility Checks

Criteria: volume > 0
volume to be decreed > feasible volume
apply flow rate standards before feasible check

Computer prints:

VM51THE CLAIMED VOLUME EXCEEDS MAXIMUM FEASIBLE VOLUME.
BASED ON THE FLOW RATE AND PERIOD OF USE, THE MAXIMUM VOLUME
POSSIBLE IS _____ACRE-FEET PER YEAR.

(NOTE: review prints it, standards stores it, decree reads it.)

5. VII.C.3.b. Water Spreading Volumes

Criteria: type of irrigation = D
type of historical right is filed or use
volume > guidelines for climatic area
no keep flag

Computer action:

- a. volume reduced to volume guideline for climatic area and acres claimed.
- b. when volume is reduced, computer adds the following remark:

VM01THE VOLUME OF THIS WATER RIGHT HAS BEEN REDUCED TO
THE _____ACRE-FEET PER ACRE GUIDELINE FOR
WATERSPREADING. THE VOLUME MAY BE CONTESTED BY PROPER
OBJECTION.
(NOTE: review prints it, standards stores it, decree reads it.)
- c. when volume is reduced, computer will assign a change volume flag, i.e., asterisks, if not already done.
- d. on review abstract claimed volume and standard volume.

EXHIBIT XII-1 (cont.)

ABBREVIATED TEXT REMARKS

1. XI.A.3.a.

Abbreviated text: AM01MM/DD/YY: FLOW RATE, VOLUME, MAXIMUM
ACRES, PLACE OF USE.

Computer prints:

THE FOLLOWING ELEMENTS WERE AMENDED BY THE CLAIMANT ON
MM/DD/YY: FLOW RATE, VOLUME, MAXIMUM ACRES, PLACE OF USE.

2. VI.F.2.d.

Abbreviated text: CX01REID DITCH

Computer prints:

DITCH NAME: REID DITCH

Abbreviated Text: CX0101-FRAZIER DITCH

CX0302-ADAMS-SMITH DITCH

Computer prints:

DITCH NAME FOR DIVERSION NO. 01 IS:
FRAZIER DITCH

DITCH NAME FOR DIVERSION NO. 02 IS:
ADAM-SMITH DITCH

3. VII.B.5.b. Decreed Rights Exceeded

Abbreviated text: DE51XX

150

9999, RAVALLI COUNTY.

DE52W000000-00, W000000-00, W000000-00.

Computer prints:

THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE FILED ON
THE SAME FORMERLY DECREED WATER RIGHT. THE SUM OF THE
CLAIMED FLOW RATES EXCEEDS THE 150 MINER'S INCHES DECREED IN
CASE NO. 9999, RAVALLI COUNTY.
W000000-00, W000000-00, W000000-00.

4. VI.C.3.a., X.B.3.a.

Abbreviated Text: FR51NE

Computer prints:

THE CLAIMED FLOW RATE WAS NOT EXAMINED BECAUSE NO FLOW RATE
GUIDELINES FOR THIS PURPOSE HAVE BEEN ESTABLISHED BY THE
CLAIM EXAMINATION RULES.

5. VII.B.4.c.

Abbreviated text: FR51XX

Computer prints:

FLOW RATE MAY REQUIRE MODIFICATION BASED ON RESOLUTION OF
MAXIMUM ACRES ISSUES.

EXHIBIT XII-1 (cont.)

6. XI.C.2.

Abbreviated text: LC01MM/DD/YY

Computer prints:

CLAIM FILED LATE MM/DD/YY. THIS CLAIM IS FORFEITED, BUT MAY BE
CONTESTED BY PROPER OBJECTION.

7. XI.C.2.

Abbreviated text: LC51NE

Computer prints:

CLAIM FILED LATE. THIS CLAIM HAS NOT BEEN EXAMINED UNDER THE
WATER RIGHT CLAIM EXAMINATION RULES.

8. VI.C.4.

Abbreviated text: MU01W000000-00, W000000-00.

Computer prints:

THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE
MULTIPLE USES OF THE SAME RIGHT. THE USE OF THIS RIGHT FOR
SEVERAL PURPOSES DOES NOT INCREASE THE EXTENT OF THE WATER
RIGHT. RATHER IT DECREES THE RIGHT TO ALTERNATE AND EXCHANGE
THE USE (PURPOSE) OF THE WATER IN ACCORD WITH HISTORICAL
PRACTICES.
W000000-00, W000000-00.

9. XI.D.1.b.

Abbreviated text: OW01TP

Computer prints:

TRANSFER PROCESSED TO ADD NEW OWNERS. THE WATER RIGHT WILL
BE SPLIT INTO SEPARATE OWNERSHIPS AFTER FINAL DECREE.

10. VII.D.4.b.

Abbreviated text: OW51XX W000000-00, W999999-99.

Computer prints:

THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT WERE FILED
BY DIFFERENT PARTIES WHO CLAIM OVERLAPPING PLACES OF USE.
W000000-00, W999999-99.

11. VI.K.4.a.

Abbreviated text: PE51EX3 ("3" is the climatic area code)

Computer prints:

THE CLAIMED PERIOD OF USE EXCEEDS THE USUAL AND REASONABLE
GROWING SEASON FOR THE AREA WHICH IS APRIL 15 TO OCTOBER 15.

12. VI.J.3.j.

Abbreviated text: PR51XX

Computer prints:

AT THE TIME OF THE CLAIMED PRIORITY DATE, IT APPEARS THAT THE
PLACE OF USE WAS PART OF AN INDIAN RESERVATION.

EXHIBIT XII-1 (cont.)

13. VI.H.2.b.

Abbreviated text: RN01WS

Computer prints:

SEE THE RESERVOIR WORKSHEET IN THE CLAIM FILE FOR ADDITIONAL
RESERVOIR DATA.

14. VII.F.5.a.

Abbreviated text: SR01ID W000000-00, W000000-00, W000000-00.

Computer prints:

THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE SUPPLEMENTAL
WHICH MEANS THE RIGHTS HAVE OVERLAPPING PLACES OF USE. THE
RIGHTS CAN BE COMBINED TO IRRIGATE ONLY OVERLAPPING PARCELS.
EACH RIGHT IS LIMITED TO THE FLOW RATE AND PLACE OF USE OF THAT
INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS
SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL
USE.

W000000-00, W000000-00, W000000-00.

15. X.C.3.

Abbreviated text: SR01OT W000000-00, W000000-00, W000000-00,
W000000-00.

Computer prints:

WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE
COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS
LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT
INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS
SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL
USE.

W000000-00, W000000-00, W000000-00, W000000-00.

16. VII.E.3.c.

Abbreviated text: SR51XX

Computer prints:

THE MAXIMUM COMBINED ACRES FOR THIS GROUP OF SUPPLEMENTAL
CLAIMS MAY REQUIRE MODIFICATION PENDING RESOLUTION OF
MAXIMUM IRRIGATED ACRES ISSUES.

17. XI.E.2.a.

Abbreviated text: TC01MM/DD/YY

Computer prints:

THIS CLAIM WAS WITHDRAWN FROM THE ADJUDICATION PROCESS AT
THE REQUEST OF THE CLAIMANT ON MM/DD/YY.

18. XI.D.1.a.

Abbreviated text: TR01YYMMDD

Computer prints:

NOTICE OF WATER RIGHT TRANSFER RECEIVED MM/DD/YY.

EXHIBIT XII-1 (cont.)

19. VII.C.4.a.

Abbreviated text: VM51EX

14.3

Computer prints:

THE CLAIMED VOLUME APPEARS TO BE EXCESSIVE FOR THE CLAIMED
PURPOSE. THE CLAIMED VOLUME EQUALS 14.3 ACRE-FEET PER ACRE.

(NOTE: Reserve six spaces, i.e., 9999.9, for volume ratio number.)

20. VIII.C.4.a.

Abbreviated text: VM51HO

Computer prints:

THE CLAIMED VOLUME MAY BE EXCESSIVE. THE CLAIMED NUMBER OF
HOUSEHOLDS AND ACRES OF DOMESTIC IRRIGATION APPEAR TO BE
INACCURATE.

21. X.B.2.e.

Abbreviated text: VM51NC

Computer prints:

THE USE OF THIS WATER APPEARS TO BE LARGELY NONCONSUMPTIVE.

22. VI.C.3.a., IX.B.2.c., X.B.3.a., X.B.3.b.

Abbreviated text: VM51NE

Computer prints:

THE CLAIMED VOLUME WAS NOT EXAMINED AS NO VOLUME GUIDELINES
FOR THIS PURPOSE HAVE BEEN ESTABLISHED BY THE CLAIM
EXAMINATION RULES.

23. IX.B.3.a.

Abbreviated text: VM51ST

2.9

Computer prints:

THE CLAIMED VOLUME APPEARS TO BE EXCESSIVE FOR THE CLAIMED
PURPOSE. THE CLAIMED VOLUME EQUALS 2.9 TIMES THE CAPACITY OF
THE RESERVOIR.

(Note: reserve four spaces, i.e., 99.9 for volume ratio number.)

24. VII.C.4.d.

Abbreviated text: VM51XX

Computer prints:

VOLUME MAY REQUIRE MODIFICATION BASED ON RESOLUTION OF MAXIMUM
ACRES ISSUES.

EXHIBIT XII-2

ERROR CHECK AUTOMATED PROCESSES

A. OWNER

- A01. MISSING OWNER (NO BEGIN DATE or ONLY END DATE)
"Missing owner"

Approach: A missing owner error will be generated for any water rights in which no owner is attached to the Water Right, or in which all owners attached to the water right have end dates.

- A02. MISSING CITY/STATE/ZIP
"Missing city"
"Missing state"
"Missing zip code"

Approach: A missing C/S/Z error will be generated for any water right in which any current owner (without an end date) does not have a city/state/zip associated to the owner record, but does have a value in the foreign address field in the address record.

- A03. MISSING CITY/STATE/ZIP and no foreign address
"Missing City, State, Zip code and no foreign address"

Approach: A missing C/S/Z error will be generated for any water right in which any current owner (without an end date) does not have a city/state/zip associated to the owner record, and also does not have a value in the foreign address field in the address record.

- A03. DUPLICATE OWNER
"Duplicate (T) owners with an end date"
"Duplicate (M) owners with a begin date"
" Owner(s) with an end date the same as owners with a begin date"

Approach: Duplicate T owners with an end date means any owners with identical first and last names, with end dates, and original owner = 'Y'. Duplicate M owners means any owners with identical first and last names, without an end date. Owners with an end date the same as owners with a begin date would mean that the same set of owners exists against the water right more than once (as if transferring the water right to themselves from themselves).

B. PURPOSE

B01. PURPOSE UNKNOWN

" Purpose unknown"

Approach: This error will be generated when the water right does not have a purpose record, or when the purpose record has a purpose type code of 'XO' (unknown).

B02. OTHER THAN ACCEPTABLE PURPOSE CODES. THE ACCEPTABLE PURPOSE CODES ARE: AS, CM, DE, DM, EC, FC, FP, FR, FW, GE, GH, IN, IS, IR, LG, MC, MD, MN, NV, OF, OT, PA, PG, PN, RC, SC, SL, ST, SG, WI.

"Invalid purpose code"

Approach: If the purpose record has a purpose type code other than one of the above, this is an error.

B03. MORE THAN ONE PURPOSE

"More than one purpose: ____"

Approach: This error message would be generated for any water right with more than one purpose record. The error message should list the purpose type codes of all purposes for this water right in recording the error.

B04. MISSING OR INVALID IRRIGATION TYPE WHEN THE PURPOSE IS IRRIGATION. The valid irrigation types are: D, F, S, N, L, O, E, and X

"Missing irrigation type"

"Invalid irrigation type code"

Approach: The first error will be generated for any water right with a purpose type code of 'IR' (irrigation), when a wrd_purp_irr_xrefs record does not exist for the purpose record. The second error will be generated for any water right in which the irrigation type code in the wrd_purp_irr_xrefs record does not have one of the values listed above.

B05. TYPE OF IRRIGATION IS 'other' (X), NO PU REMARK

"Irrigation type is X, but no purpose remark"

Approach: For any water right with a purpose type code of 'IR' (irrigation), and an irrigation type of 'X' (other), if no remark exists for this water right in formatted

remarks with rmcg_cd of PU, this error will be generated.

EXHIBIT XII-2 (cont.)

B06. NUMBER OF HOUSEHOLD > 0, USE NOT DM OR MD

"number of households = _____, use not domestic or multiple domestic"

- ◆ Approach: For any water right with a purpose type code other than DM or MD, having the value in wrd_purposes.families > 0 this error will be generated.

C. SOURCE

C01. MISSING SOURCE NAME (source tab)

"Source tab, no source"

- ◆ Approach: No record exists in wrd_version_reach_xrefs for this water right, associating the version with a source.

C02. MISSING SOURCE NAME (diversion record)

"Diversion pod id #_____, no source"

- ◆ Approach: This check will be performed for **each** point of diversion of this water right. An error will be generated if the sour_id_seq value in the wrd_point_of_diversions record does not have a value.

C03. SOURCE NAMES ON DIVERSION RECORDS DON'T MATCH

"Diversion source names vary, pod id # 1 = first source"

"Diversion source names vary, pod id # ____ = _____"

- ◆ Approach: Generate an error if the sources are not all the same. In this case, the error would indicate the POD number (wrd_point_of_diversions.podv_no) and the source name associated with that POD, for all PODs for the water right.

C04. Major TYPE CODE = "S" and diversion means = well

"Major type = Surface, but means of diversion is well"

- ◆ Approach: If the MODV_CD (means of diversion) for a given point of diversion record has a value of 'WL' (well), look at the source listed against that point of diversion record. If the source has a major type (going through the wrd_minor_types table), with a value of 'S' (surface water), then this is an error.

EXHIBIT XII-2 (cont.)

C05. DIVERSION RECORD WITH MAJOR TYPE CODE "G", EXCEPT WHEN ST REMARK. ST REMARKS WOULD HAVE TEXT THAT SAYS ONE OF THE FOLLOWING: SPRING, WASTE AND SEEPAGE, SUBIRRIGATION, MANMADE PIT, NATURAL PIT.

"Major type = Ground water, source name implies surface water"

- ◆ Approach: Starting at the Point of Diversion record, go back through the source to the minor type. If the major type for the given source is 'G' (groundwater), but the source name contains one of the following words ('Creek', 'River', 'Coulee'), and the water right does not have a formatted remark of rmcg_cd 'ST', then this is an error.

C08. SOURCE NAME SHOULD BE STREAM, RESERVOIR/LAKE NAME SHOULD BE DIFFERENT OR BLANK

"Source name and reservoir/lake name are the same"

- ◆ Approach: If the standard name of the source record for the point of diversion exactly matches the nm value in the associated wrd_reservoirs record, then this is an error.

C09. SOURCE TYPE REMARK MISSING SOURCE CODE NAME OR, OTHER THAN SPRING, WASTE AND SEEPAGE, SUBIRRIGATION, MANMADE PIT, NATURAL PIT.

"Source type remark missing or invalid"

- ◆ Approach: The water right has a formatted remark with rmcg_cd of 'ST', and the formatted library code (frlb_cd is not one of the following: S185, S175, S180, S190, S195), and the wrd_data_elements.val column does not contain one of these exact words/phrases: SPRING, WASTE AND SEEPAGE, SUBIRRIGATION, MANMADE PIT, NATURAL PIT

- ◆ C10. R type reservoirs have the lake or reservoir name coded in parens after the source name, and a rx type remark.

"Reservoir or lake in source name and no r type reservoir remark."

- ◆ Approach: The source for the point of diversion of a water right has a minor type of 'RESV' (reservoir), and the water right record does not have a formatted remark with a rmcg_cd of 'RX'

D. PRIORITY DATE

D01. MISSING/INCOMPLETE
"Missing priority date"

- ◆ Approach: This error will be generated when this field is null.

D02. PRIORITY DATE PRIOR TO 1860
"Priority date prior to 1860"

- ◆ Approach: Error if the priority date is prior to 1/1/1860.

D03. TYPE OF HISTORICAL RIGHT MISSING
"Type of historical right missing"

- ◆ Approach: Error if the field wrd_water_rights.historical_rgt_typ is null.

D05. B TYPE WATER RIGHT **ENFORCEABLE** PRIORITY DATE CHECK
"B Type water right, enforceable priority date not 6-30-1973"

- ◆ Approach: Error for water rights with a status (wrd_water_rights.wrst_cd) of 'ACTV' (active) and a type wrd_water_rights.wrte_cd of 'STOC' (statement of claim) and a late designation (wrd_water_rights.lte_dsgn) of 'B'.

E. FLOW RATE

E01. MISSING FLOW UNITS
"Missing flow rate units"

- ◆ Approach: Error when the value in wrd_versions.flw_rt_unt is null but there is a value in max_flw_rt.

E02. UNITS BUT NO FLOW
"Units but no flow rate"

- ◆ Approach: Error when the value in max_flw_rt is null but there is a value in flw_rt_unt.

EXHIBIT XII-2 (cont.)

E03. FLOW "KEEP" FLAG SET **"Flow rate has a keep flag"**

- ◆ Approach: If the Element Origin for the Flow Rate in the Version Record is one of the "keep" values, and VF012 or VF013 are not present, then report this error.

E04. SHOULD BE NO FLOW FOR ONSTREAM RESERVOIR, EXCEPT DECREED RIGHTS **"Flow rate value for onstream reservoir, not a decreed type of right"**

- ◆ Approach: Error if the reservoir record for a water right has a reservoir_typ value of "ON" (onstream reservoir), and the version record shows a value for the flow rate, unless the water right record has a value in historical_rgt_typ of 'DECR' (a decreed right). Do not execute message if there is a volume remark V9.

E05. FLOW RATE ZERO FOR OFFSTREAM RESERVOIR **"Flow rate zero for offstream reservoir"**

- ◆ Approach: Error if the version record shows a zero or null value for the flow rate, but the water right has a reservoir record with a reservoir_typ of 'OFF' (offstream reservoir).

E07. ST-FLOW RATE ZERO, EXCEPT FOR LS, HG, DT, DR, US MEANS OF DIVERSION, TYPE = S, NO ONSTREAM RESERVOIR **"Error in rate or means, flow rate zero for diversion means other than direct from source, headgate, ditch, drain ditch, undeveloped spring"**

- ◆ Approach: If the purpose of this water right is 'ST' (stock), and the flow rate in the version record is zero or null, this is an error unless one of the following is true:
The water right has a diversion record with a means of diversion of 'LS', or 'HG', or 'DT', or 'DR', or 'US' and the source of this means of diversion has a major type of 'S' (surface water)
The water right has a reservoir record with a reservoir_typ of 'ON' (onstream reservoir)

E08. IR-FLOW RATE VALUE, TYPE OF IRRIGATION D (NO PUMP), N OR O **"Flow rate value, but irrigation type = water spreading, natural subirrigation, or natural overflow"**

- ◆ Approach: If the water right version has a flow rate, and the purpose of the water right is 'IR' (irrigation), and the type of irrigation (wrd_purp_irr_xrefs.irtp_cd) is 'D', 'N', or 'O', this is an error, unless the following is true:

EXHIBIT XII-2 (cont.)

The irtp_cd = 'D' AND the water right has a point of diversion record with a modv_cd of 'PM' for "pump"

E09. IR-FLOW RATE ZERO, EXCEPT IRRIG. TYPE D (NO PUMP), N OR O, OR, EXCEPT ONSTREAM RESERVOIR

"Flow rate zero, but irrigation type not water spreading, natural subirrigation, or natural overflow"

- ◆ Approach: The water right version should have a flow rate value for a purpose of 'IR' (irrigation), unless one of the following is true:
the irrigation type is 'N' or 'O',
the water right has a reservoir record with a reservoir_typ value of 'ON', or
the irrigation type is 'D' and the water right has a point of diversion record with a modv_cd of anything other than 'PM' for "pump"

E10. ST, DM, LG, MD-FLOW RATE > 35 GPM, AND NO (KEEP) FLAG

"Flow rate > 35 gpm"

- ◆ Approach: For water rights with purpose type codes of 'ST', 'DM', 'LG', or 'MD', if the flow rate is greater than 35GPM (or 0.078 CFS) and the element origin for the flow rate in the version record does not have a "keep value" then this is an error.

E11. OT-FLOW RATE > 1 CFS

"Flow rate > 1 CFS (448.8 gpm) for uses other than domestic, stock, irrigation"

- ◆ Approach: For any purpose other than 'DM', 'MD', 'ST', or 'IR', if the flow rate is greater than 1 CFS (448.8 GPM), then this is an error.

E12. ALL USES, FLOW RATE > 0 AND < 5 GPM OR < .02 CFS

"flow rate < 5 GPM or .01 CFS"

- ◆ Approach: Error when the version record has a flow rate, but that flow rate is less than either 5GPM or .01CFS. Error if flow rate is greater than 0 and less than 1 GPM or less than .002 CFS.

E13. KEEP FLAG SET, BUT NO FLOW RATE

"Keep flag set, but no flow rate"

- ◆ Approach: Error when the version record has a keep flag set for the flow rate, but the flow rate itself is zero or NULL and there is no VF012 or VF013

EXHIBIT XII-2 (cont.)

E14. DOMESTIC USE AND NO FLOW RATE **"DM, MD or LG and no flow"**

- ◆ Approach: Error when the purpose of the water right is 'DM' or 'MD' or 'LG' and the flow rate value in the version record is zero or NULL.

F. VOLUME

F01. MISSING CLIMATIC AREA, USE IS IRRIGATION **"Climatic area is missing"**

- ◆ Approach: Error when the purpose type code is 'IR' (irrigation), but no climatic area is specified (purpose.clar_cd is null).

F02. CLIMATIC AREA EXISTS, USE IS NOT IRRIGATION **"Climatic area exists, use is not irrigation"**

- ◆ Approach: Error when the purpose type code is NOT 'IR' (irrigation), and a climatic area has been specified (purpose.clar_cd is not null).

F03. VOLUME NOT FEASIBLE WITH FLOW (OR CALCULATED STD FLOW) **"Volume not feasible with flow"**

- ◆ Approach: Take the flow rate in GPM x Period of appropriation in days x number of minutes in a day (1440) = total gallons the flow rate will produce. Divide the results by 325,851 (the number of gallons in 1 acre foot). Compare the calculated value with the max volume specified in the version record, and if the max volume amount is greater than the calculated amount, this is an error.
- ◆ If the flow rate units are in CFS, then take the flow rate x the period of appropriation in days x 1.983 (the number of gallons per acre-foot for 24 hours), and then compare that value with the max volume. Again, if the max volume amount is greater than the calculated amount, then this is an error.

F04. VOLUME "KEEP" FLAG SET **"Volume has a keep flag"**

- ◆ Approach: Error if the max_vol_elem_orgn field in the version record has a "keep" value.

EXHIBIT XII-2 (cont.)

F05. NO VOLUME FOR ANY RESERVOIR, EXCEPTING 'R' RESERVOIRS AND ST, MN, AND FP USES

"No volume, but claim has a reservoir"

- ◆ Approach: If the water right has a reservoir record attached, and does not have a value in max volume for the version, this is an error – unless the purpose of the water right is 'ST', 'MN', or 'FP', or a V9 remark is present.

F06. WARNING - VOLUME ACHIEVED IN 5 DAYS

"Volume can be achieved within 5 days"

- ◆ Approach: Use the following formula:
 - ◆ $\text{Volume} * 325851 / \text{flow rate in GPM} \times 1440 = \text{days}$.
If Days ≤ 5 , then error.
- Or
- ◆ $\text{Volume} * /35851 / \text{flow rate in CFS} * 448.8 * 1440 = \text{days}$
If Days ≤ 5 , then error.

F07. ST-VOLUME VALUE, NO USA OWNERSHIP, NO RESERVOIR RECORD

"Volume value - No USA ownership or reservoir"

- ◆ Approach: Error when the purpose type code for the water right is 'ST' (stock), the purpose record shows a volume amount (or the version record shows a max volume amount), no reservoir record exists, and the owner last name does not start with USA.

F08. ST-VOLUME ZERO, OWNERSHIP IS USA, RESERVOIR RECORD

"Volume zero - USA ownership and reservoir"

- ◆ Approach: Error when the purpose type code for the water right is 'ST' (stock), the purpose record does not show a volume amount (and the version record does not show a max volume amount), and the owner last name starts with USA.

F09. IR-VOLUME VALUE, EXCEPT TYPE OF IRRIGATION D, EXCEPT ON/OFFSTREAM RESERVOIR, OR EXCEPT DECREED RIGHTS

"Volume value - not water spreading, reservoir, or decreed right"

EXHIBIT XII-2 (cont.)

Approach: Error when the purpose type code for the water right is 'IR' (irrigation), and the purpose record shows a volume amount (or the version record shows a max volume amount), unless one of the following is true:

- the irrigation type code is 'D'

- the water right has a reservoir record

- the water right has a historical right type value of 'DECR' (decreed).

F10. IR-NO VOLUME FOR WATER SPREADING (D)
"Volume missing for water spreading"

Approach: Error when the purpose type code for the water right is 'IR' (irrigation), and the irrigation type code is 'D' (water spreading), and the purpose record does not show a volume amount (or the version record does not show a max volume amount).

F12. DM, MD, LG USES, CLAIMED VOLUME GREATER THAN GUIDELINE AND NO VM51-99 REMARK. The volume guideline is 1.5 acre-feet per household.
"Claimed volume > guideline of ____ af, no volume issue remark"

- ◆ Approach: Error when the purpose type code for the water right is 'DM' or 'MD' or 'LG', the volume for the purpose is greater than $1.5 \times \text{wrd_purposes.families value}$ when max acres is zero, or 1 times the number of families plus 2 times the max acres when the max acres is greater than zero, and the water right does not have an associated volume issue remark.

- ◆

F13. KEEP FLAG SET, BUT NO VOLUME
"Volume has a keep flag set, but no volume"

- ◆ Approach: Error when the version record has a keep flag set for the volume, but the volume amount itself is zero or NULL.

F14. DOMESTICE USE AND NO VOLUME
"DM, MD or LG and no volume"

- ◆ Approach: Error when the purpose of the water right is 'DM' or 'MD' or 'LG' and the volume value in the version record is zero or NULL.

EXHIBIT XII-2 (cont.)

G. MAX ACRES

G01. NOT EQUAL TO SUM OF PARCEL ACRES
"Max acres not = sum of parcel acres"

- ◆ Approach: Error when the max_acres value in the version record does not equal the sum of all acres in the wrd_place_of_uses.acreage field for the given water right.

G02. ZERO ACRES FOR IRRIGATION
"Maximum claimed acres = zero"

- ◆ Approach: Error if the purpose type code is 'IR' (irrigation) and the max_acres value in the version record is null or zero.

G03. > 5 ACRES DM, LG OR MD USES
"Maximum acres > 5 for domestic, lawn and garden, or multiple domestic use"

- ◆ Approach: Error if the purpose type code is 'DM' or 'LG' or 'MD' and the max_acres value in the version record is > 5.

H. PERIOD OF USE

H01. MISSING PERIOD OF USE
"Missing period of use"

- ◆ Approach: Error if the water right does not have a record in the period_of_uses table, attached to a purpose record for that water right.

H02. WARNING - YEAR-ROUND IRRIGATION, EXCEPT IRRIGATION TYPE D, N, C, OR O
"Year round irrigation"

- ◆ Approach: Error if the purpose type is 'IR' (irrigation), and the type of irrigation is other than 'D', 'N', 'C', or 'O', and the period of use for this purpose is 365 days (ie: difference between end_dt and bgn_dt for the wrd_period_of_uses record).

EXHIBIT XII-2 (cont.)

H03. PERIOD OF USE "KEEP" FLAG SET **"period of use has keep flag"**

- ◆ Approach: Error if the water right has a "keep" value for the period of use element origin field.

H04. PERIOD OF DIVERSION DOES NOT EQUAL PERIOD OF USE AND NO KEEP FLAG ON PERIOD OF DIVERSION ORIGIN **"Period of use does not equal period of diversion"**

- ◆ Approach: Error if the difference between the end_dt and the bgn_dt fields in the wrd_period_of_uses table for the record attached to the water right version does not equal the sum of the difference between the end_dt and the bgn_dt for all period of uses attached to the purposes for the same water right.

I. POINT OF DIVERSION

I01. MISSING DIVERSION (NO WELL OR NO DIVERSION RECORDS) **"Missing point of diversion"**

- ◆ Approach: Error if the water right does not have a wrd_point_of_diversions record.

I04. BASIN OUTSIDE COUNTY PARAMETERS **"Pod id # ____ trs is not within water right basin"**

- ◆ Approach: Error if the legal land description for this point of diversion record is not among the legal land descriptions applicable for the given basin (ie: not in the cross reference between the basin and the lld). If the modv_cd is 'WL' –well, then the error code would begin WL and would include the podv_no (point of diversion number). Otherwise the error code would be DV with the podv_no value.

K02. DIVERSION CODE IS unknown. The valid codes are: BK, DD, DK, DM, DP, DR, DS, DT, FL, HG, IG, IN, LS, NO, PL, PM, PT, SB, SI, US, XX. **"POD id # ____ invalid means of diversion code"**

- ◆ Approach: Error if the means of diversion code (modv_cd) in the point of diversion record does not match one of the values listed above.

EXHIBIT XII-2 (cont.)

K03. DIVERSION MEANS IS XX, NO DM REMARK

"Pod id # ____ diversion means is other and no diversion means information remark"

- ◆ Approach: Error if the value in modv_cd (means of diversion) is an 'XX' and the water right does not have an attached remark with a rmcg_cd of 'DM'.

K04. NO RESERVOIR RECORD AND DIVERSION MEANS = DM, PT OR DP

"POD id # ____ diversion means is DM, but no reservoir record"

" POD id # ____ diversion means is PT, but no reservoir record"

" POD id # ____ diversion means is DP, but no reservoir record"

- ◆ Approach: Error if the point of diversion record has a means of diversion code (modv_cd) of 'DM' or 'PT' or 'DP' and the water right does not have a reservoir record.

L. RESERVOIR

L03. BASIN OUTSIDE COUNTY PARAMETERS

"Reservoir trs is not within water right basin"

- ◆ Approach: Error if the legal land description for the reservoir record is not within the set of legal land descriptions for the basin the water right is in (ie: in the xref between the basin and the LLD).

L06. RESERVOIR, DIVERSION MEANS NOT DM, PT, OR DP

"Reservoir, diversion means other than dam, pit or dam/pit"

- ◆ Approach: Error if the point of diversion record has a modv_cd (means of diversion) of something other than 'DM', 'PT', or 'DP' and the water right has a reservoir record.

L07. RESERVOIR NAME REMARK WITH NO RESERVOIR RECORD

"Reservoir name remark, no reservoir record"

- ◆ Approach: Error if the water right has an associated remark record with a rmcg_cd of 'RN', but the water right does not have a reservoir record.

EXHIBIT XII-2 (cont.)

L09. RESERVOIR RECORD BUT NO RN01-50 REMARK FOR VOLUME > 15
AF

"Reservoir record, check for reservoir worksheet remark"

- ◆ Approach: Error if the water right has a max_volume amount in the version record that is greater than 15, and also has a reservoir record, but does not have an associated information remark with a rmcg_cd of 'RN'.

M. PLACE OF USE

M03. BASIN OUTSIDE COUNTY PARAMETERS

"Parcel id # ____ trs is not within water right basin"

- ◆ Approach: Error if the legal land description for the place of use record is not within the set of legal land descriptions for the basin the water right is in. (ie: not in the xref between basin and LLD)

M06. IRRIGATION, MISSING ACRES

"Parcel id # ____ shows zero acres for irrigation"

- ◆ Approach: Error if the place of use record does not have an amount for acreage, and the purpose of the water right is 'IR' (irrigation).

M07. PARCEL ACRES GREATER THAN 640

"PAR 001 parcel acres > 640"

- ◆ Approach: Error if the number of acres listed for place of use record is greater than 640.

PARCEL ACRES > 160/320 FOR ONE QUARTER SECTION
DESCRIPTION

"Parcel id # ____ 400.00 acres NE - acres > 160 for 1 qtr sec desc"

" Parcel id # ____ 600.00 acres S2 - acres > 320 for 1 qtr sec desc"

PARCEL ACRES > 40 FOR TWO QUARTER SECTION DESCRIPTIONS

" Parcel id # ____ 60.00 acres NENE - acres > 40 for 2 qtr sec desc"

PARCEL ACRES > 10 FOR THREE QUARTER SECTION
DESCRIPTIONS

" Parcel id # ____ 20.00 acres NENENE - acres > 10 for 3 qtr sec desc"

EXHIBIT XII-2 (cont.)

- ◆ Approach: Use formula for making determination of whether the number of acres claimed is correct.

M08. ACRES LISTED, NO IR, DM, MD, LG, CM OR MC USE.
" Acres listed, use is not irrigation, domestic, multiple domestic, lawn and garden, commercial, or municipal"

- ◆ Approach: Error if the water right has a number in the place of use record for acres, but the purpose of the right is not one of the above.

M09. NO PARCEL RECORDS
"Missing entire place of use"

- ◆ Approach: Error if the water right does not have any place of use records.

M10. INVALID QUARTER SECTION – A HALF DESCRIPTION HAS BEEN
QUARTERED (FOR EXAMPLE LLD = NWS2)
"Parcel id # ____ Invalid quarter section description"

- ◆ Approach: Error if the parcel has a LLD where a quarter section has been halved.

N. SUPPLEMENTAL RIGHTS

N02. MAXIMUM ACRES GRANTED > SUM OF ACRES
"Supplemental rights: max granted acres > sum of rights"

- ◆ Approach: For any water rights that are associated as related rights (ie: have a value in wrd_related_right_wr_xrefs) with a related right type of SUPL, error if the max_acres value in the wrd_related_rights record for this association of water rights is greater than the value in max_acres for the version records of all water rights that participate in the association.

N03. MAXIMUM ACRES GRANTED < LARGEST INDIVIDUAL RIGHT
"Supplemental rights: max granted acres < largest individual right"

- ◆ Approach: For any water rights that are associated as related rights (ie: have a value in wrd_related_right_wr_xrefs) with a related right type of SUPL, error if the max_acres value in the wrd_related_rights record for this association of water rights is less than the value in max_acres in the version record for the water right that participates in the association that has the largest max_acres value.

EXHIBIT XII-2 (cont.)

N04. WATER RIGHT in two supplemental relationships

"Right is named in more than one supplemental relationship"

- ◆ Approach: Error if the water right is in the wrd_related_right_wr_xrefs table with a related right type of SUPL, associated to more than one rlrt_id_seq value.

N06. NON-W CLAIM INCLUDED IN SUPPLEMENTAL RIGHTS
RELATIONSHIP

**" Supplemental rights: ____ non statement of claim rights included in
supplemental relationship "**

- ◆ Approach: Error if the water right has a status other than Active, and a type other than Statement of Claim, but is included in a wrd_related_right_wr_xrefs record with a related right type of SUPL.

N07. CLAIMED SUPPLEMENTAL RIGHTS MUST HAVE THE SAME PURPOSE

**"The following supplemental right(s) ____ do not share the same
purpose as the water right being checked"**

- ◆ Approach: If the water right is included in a wrd_related_right_wr_xrefs record with a related right type of SUPL, check the purpose records for all water rights in the association. If any of the water rights in the association do not have the same purpose type code value in their purpose records, this is an error.

N08. CLAIMED SUPPLEMENTAL RIGHTS MUST BE WITHIN THE SAME
BASIN

**"The following supplemental right(s) ____ are not in the basin of the
water right being checked"**

- ◆ Approach: If the related right type is 'SUPL', supplemental, and water rights are included in the relationship that are not in the same basin as the water right being checked, this is an error.

O. REMARKS

O03. PL51-99 REMARK, NO ONSTREAM RESERVOIR RECORD, USE IS DM,
MD, CM, LG, MC, IR (EXCEPT D, N, & O IRRIGATION TYPES), NO FR51-
99 REMARK

**" Place of use issue remark, check for flow rate modification remark
(F180)"**

EXHIBIT XII-2 (cont.)

- ◆ Approach: If the water right has a remark with a `rmcg_cd` of 'PLIS', the water right does not have a reservoir record with a `reservoir_typ` value of 'ON' (onstream), and the water right has either:

A purpose type code in the purpose record of 'DM', 'MD', 'CM', 'LG', or 'MC', or

A purpose type code in the purpose record of 'IR', and if the purpose type code is 'IR', the irrigation type code is not 'D', 'N', or 'O',

But, the water right does not have remark with a `rmcg_cd` of 'FRIS', then generate this error.

O04. PL51-99 REMARK, SUPPLEMENTAL RIGHTS RELATIONSHIP, NO SR51-99 REMARK

"Place of use issue remark, check supplemental acre modification remark (S150)"

- ◆ Approach: If the water right has a remark with a `rmcg_cd` value of 'PLIS', and is in a supplemental rights relationship (`wrgt_id_seq` is in `wrgt_related_right_wr_xrefs`), but does not have a remark with a `rmcg_cd` value of 'SRIS', then generate this error.

O05. PL51-99 REMARK, USE IS LG, DM, MD, CM, MC, IR (TYPE D), IR (WITH RESERVOIR RECORD), NO VM51-99 REMARK

"Place of use issue remark, check for volume modification remark (V55)"

- ◆ Approach: If the water right has a remark with a `rmcg_cd` value of 'PLIS', and one of the following:

has a purpose record with a purpose type code of 'LG', 'DM', 'MD', 'CM', or 'MC', or

has a purpose type code of 'IR' with an irrigation type code of 'D', or

has a purpose type code of 'IR' and has a reservoir record

But, the water right does not have remark with a `rmcg_cd` of 'VMIS', then generate this error.

O06. IMPLIED CLAIM, CI REMARK MISMATCH

"Implied claim, but no CI remark"

"CI remark, but no Implied Claim"

- ◆ Approach: If the `implied_clm` value of the `wrd_water_right` record is 'Y' for yes, then this right must have a 'CI' or a 'CIIS' remark. If it does not, issue the first error message. Otherwise, if a 'CI' or a 'CIIS' remark exists for a water right and this right does not have a 'Y' in the `implied_clm` value, then issue the second error message.

EXHIBIT XII-2 (cont.)

P. GENERAL

P01. CLAIM TYPE IS an irrigation district
" Claim on irrigation district form, water right type should be adjudication, not used" "

- ◆ Approach: Error if the water right type wrte_cd is 'IRRD' (irrigation district).

P02. NO DATE FOR WHEN CLAIM WAS RECEIVED BY DEPARTMENT
"No date received"

- ◆ Approach: Error if the water right does not have a value in the wrd_water_rights.dt_received field.

P04. DATE RECEIVED SHOULD NOT BE BEFORE NOVEMBER 1979
"Date received earlier than 11/79"

- ◆ Approach: Error if the water right does has a value in the wrd_water_rights.dt_received field that is < November 1, 1979.

Q. TERMINATED CLAIMS

Q01. TERMINATED CLAIM (O) WITH NO TC REMARK
"Withdrawn claim, but no terminated claim remark"

- ◆ Approach: All water rights with a status of withdrawn should have a remark with a rmcg_cd value of 'TC' (terminated claim). Error any water rights that have a wrst_cd value of 'WDRN' without a 'TC' remark.

Q02. TC REMARK, CLAIM ID IS "W"
" Terminated claim remark present, but claim status not withdrawn "

Approach: An active statement of claim water right should not have a 'TC' (terminated claim) remark. Error any water right with a wrst_cd value of 'ACTV' (active), a wrte_cd of 'STOC' (statement of claim) that has a remark with a rmcg_cd value of 'TC'.

New Error Checks

DECREE EXCEEDED A.

"(Hist right type) historical type of right and decree exceeded (D5) remark."

Approach: If type of right in (FILED, USE, or RESERVED) and a D5 remark exists, this is an error.

FEE INSUFFICIENT A.

"Fee insufficient remark: fee owed box not checked."

Approach: If fee owed box checked and no FI remark.

FEE INSUFFICIENT B.

"Fee insufficient remark: fee owed box not checked."

Approach: If fee insufficient (FI) remark and fee owed box not checked.

FEE INSUFFICIENT C.

"Exempt with fee insufficient (F35) remark."

Approach: if received date is on or between 5/1/1982 to 7/1/1996 and purpose = stock or domestic and S/G = groundwater (G) and processing fee insufficient (F35) remark and EXEMPT box is checked.

Ref: VI.A.3. (page 210)

FEE INSUFFICIENT D.

"Exempt with fee insufficient (F35) remark."

Approach: if received date is on or between 5/1/1982 to 7/1/1996 and purpose = stock or domestic and means of diversion = livestock direct from source (LS) or instream (IN) and processing fee insufficient (F35) remark and EXEMPT box is checked.

Ref: VI.A.3. (page 210)

EXHIBIT XII-2 (cont.)

FLOW RATE A.

“S/G code = groundwater and means of diversion implies a flow rate.”

Approach: S/G code = groundwater (G) and means of diversion = developed spring (DS), well (WL), spring box (SB), pit (PT), pump (PM), pipeline (PL) infiltration gallery (IG), or dam/pit (DP) and flow rate = 0

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FLOW RATE B.

“Null flow rate: check flow rate origin of (origin).”

Approach: if flow = 0 and the origin = claimed or amended and not F170, F172 F190 or F195 remark.

FLOW RATE D.

This error check has five possible error messages. Each error message corresponds to the same first initial criteria, but has distinct secondary checks.

“Check/remove flow rate...”

Approach: if the flow rate origin does not have a ‘keep’ flag and there is a flow rate value > 0 and one of the following is met:

Purpose = stock, surface water, onstream reservoir exists and means of diversion = dam, dam/pit, livestock direct from source, undeveloped spring, ditch, headgate, instream or intake.

- ◆ Ref: IX.A.3.a (page 417)

- ◆ **“... stock purpose, onstream reservoir, surface water.”**

Purpose not = multiple domestic, lawn & garden, stock, domestic, irrigation and means of diversion = instream or intake. No keep flag on max flow.

“... purpose not ‘MD’, ‘LG’, ‘ST’, ‘DM’, ‘IR’, means of diversion = instream(IN) or intake(IL), is VF012 present?”

Purpose = stock, wildlife, fish & wildlife and USA owned and a reservoir record exists.

“... Purpose = stock, wildlife, or fish wildlife, USA owned, and a reservoir exists.”

Purpose = irrigation, irrigation type = natural overflow or natural subirrigation OR irrigation type = water spreading and no reservoir record exists.

“... Irrigation purpose.”

EXHIBIT XII-2 (cont.)

Purpose = stock, and means of diversion = dam, dam/pit, , pit, livestock direct from source, undeveloped spring, ditch, headgate, or natural overflow and no offstream reservoir.

“... or correct means of diversion code.”

FLOW RATE E.

"Flow rate > 35 GPM and no flow rate remark or keep flag."

Approach: if purpose = domestic, stock, lawn and garden, or multiple domestic, no reservoir record and flow rate > 35 gpm and no keep flag or flow rate (FR) issue remark.

Ref: VIII.B.3.a. (page 398) and IX.A.3.b. (page 418)

FLOW RATE/VOLUME A.

"Flow rate may be excessive for means of diversion: add F211 and/or V77."

Approach: if means of diversion = bucket or hand pump or D25 (diversion means) remark lists bucket or hand pump and no F211 (flow rate) or V77 (volume) and flow rate > 5 gpm and/or volume > 1 acre-foot.

Ref: VIII.B.3.a. (page 398)

FLOW RATE/VOLUME-IR A.

"Check if place of use issue applies or remove flow or volume issue remark."

Approach: if purpose = irrigation and F180 (flow rate) or V55 (volume) and no PL (place of use) issue remark.

FLOW RATE/VOLUME-IR B.

"Add F180 or V55."

Approach: if purpose = irrigation and place of use issue remarks: (P240, P271, P284) or remark P287 and no F180 (flow rate) or V55 (volume). Ref: VII.B.5.d. (page 348) and VII.C.4.d. (page 360)

FLOW RATE/VOLUME-IR C.

"Flow rate to acres ratio exceeds 17.00 gpm/acre (value): add F180."

EXHIBIT XII-2 (cont.)

Approach: if purpose = irrigation and place of use (P235, P270, P286, P283, P245, P250) issue remarks, calculate flow rate to acres ratio based on **lowest** acre number in place of use issue remark (water right flow rate divided by lowest number of acres in PL issue) and the result is > 17 gpm/acre and no F180
Ref: VII.B.5.d. (page 349)

FLOW RATE/VOLUME-IR D.

**"Flow rate to acres ratio does not exceed 17.00 gpm/acre (value):
remove F180."**

Approach: if purpose = irrigation and place of use (P235, P270, P286, P283) issue remarks, calculate flow rate to acres ratio based on **lowest** acre number in place of use issue remark (water right flow rate divided by lowest number of acres in PL issue) and the result is < 17 gpm/acre and F180 - and no P240, P271, P284, and/or P287
Ref: VII.B.5.d. (page 348, 349)

IMPLIED CLAIM A.

"Implied claim - add implied claim remark and check for original claim (RM) remark."

Approach: if implied claim box is checked and no implied claim (CI) remark.
Ref: XI.B.4. (page 464)

IRRIGATION TYPE CODE A.

**"Invalid irrigation type code."
"No irrigation type code exists."**

Approach: if irrigation type is not D(water spreading), F(flood), S(sprinkler), N(natural subirrigation), L(controlled subirrigation), O(natural overflow), E(sprinkler/flood), X(other).

If no irrigation type code exists when the purpose is irrigation.

Ref: VII.A.2. (page 331)

IRRIGATION TYPE CODE B

**"CHECK IRRIGATION METHOD, SPRINKLER FOR PRE-1955 PRIORITY
DATE (YEAR OF CLAIM PRIORITY DATE INSERTED HERE)."**

Approach: if irrigation with irrigation type of ((S)sprinkler or (E)sprinkler/flood or (J)sprinkler/flood/furrow or (A)sprinkler/furrow) and priority date prior to 1955, then error.

LATE CLAIMS/PRIORITY A.

EXHIBIT XII-2 (cont.)

“‘A’ type late claim and exempt box not checked: add L5.”

Approach: if date received is on or between 5/1/1982 and 5/7/1982 and no L5 remark.

Ref: XI. C.1.a. (page 466)

LATE CLAIMS/PRIORITY B.

“‘B’ type late claim and exempt box not checked: add L6.”

Approach: if date received is on or between 5/8/1982 and 7/1/1996 and no L6

Ref: XI. C.1.b. (page 466)

LATE CLAIMS/PRIORITY C.

“‘B’ type late claim and exempt box not checked: add L7.

Approach: if date received is on or between 5/8/1982 and 7/1/1996 and no L7.

Ref: XI. C.1.b. (page 466)

LATE CLAIMS/PRIORITY D.

"No LATE CLAIM exempt Remark: add L8 remark.

Approach: if exempt box is checked and the date received is on or between 5/1/1982 and 7/1/1996 and no L8.

Ref: XI. C.1.c. (page 466, 467)

LATE CLAIMS/PRIORITY E.

" Check exempt box."

Approach: if the exempt box is not checked and the purpose = stock or domestic and S/G = G and the date received is on or between 5/1/1982 and 7/1/1996 and L8 remark exists.

LATE CLAIMS/PRIORITY F.

"Possible exempt claim: add L8 and check exempt box if applicable."

Approach: if the exempt box is not checked and the purpose = stock or domestic and S/G = G and the date received is on or between 5/1/1982 and 7/1/1996 and no L8.

LATE CLAIMS/PRIORITY G.

"Possible exempt claim: add L8 and check exempt box if applicable".

EXHIBIT XII-2 (cont.)

Approach: if the exempt box is not checked and purpose = stock or domestic and means = LS or IN and the date received is on or between 5/1/1982 and 7/1/1996 and no L8 remark.

LATE CLAIMS/PRIORITY H.

"Check exempt box".

Approach: if the exempt box is not checked and purpose = stock or domestic and means = LS or IN and the date received is on or between 5/1/1982 and 7/1/1996 and L8 remark exists.

LATE CLAIMS/PRIORITY I.

"(purpose) purpose: exempt claim box checked."

Approach: if exempt box is checked and purpose not in domestic (DM) or stock (ST).

LATE CLAIMS/PRIORITY J

"L8 REMARK – CHANGE A OR B LATE TYPE TO NULL."

Approach: if L8 remark exists, late designation is A or B, date received is on or between 5/1/1982 and 7/1/1996 then error .

LATE CLAIMS/PRIORITY K

"L5, L6, L7 AND L8 REMARK. CHECK REMARKS, L8 IS NOT COMPATABLE WITH OTHER L REMARKS."

Approach: if L5 or L6 or L7 remark exists and L8 remark exists then error .

MAX ACRES/PARCEL ACRES A.

"Sum of parcels acres not equal to maximum acres." , check and add M100 if applicable".

Approach: if sum of parcel acres do not equal maximum acres and no M100 remark.

MEANS OF DIVERSION A.

"Means of diversion not valid."

EXHIBIT XII-2 (cont.)

Approach: if means of diversion is not = BK(bucket), DD(diversion dam), DK(dike), DM(dam), DP(dam/pit), DR(drain ditch), DS(developed spring), DT(ditch), HG(headgate), IG(infiltration gallery), IN(instream), IL(inlake), LS(direct from source), NO(natural overflow), PL(pipeline), PM(pump), PT(pit), SB(spring box), SI(subirrigation), US(undeveloped spring), WL(well), XX(other)
Ref: VI.G.2. (page 279)

MEANS OF DIVERSION B.

"MEANS OF DIVERSION B - ONSTREAM RESERVOIR: MEANS OF DIVERSION NOT PIT(PT), DAM/PIT(DP), OR DAM(DM)."

Approach: if onstream reservoir and means of diversion is not DAM(DM), DAM/PIT(DP), or PIT(PT).
Dnrc_dc 04/01/2008 (duplicate of 'Means of Diversion B' check) disabled Means of Diversion B check

POINT OF DIVERSION A.

"Point of diversion should have 3 quarter sections if identifiable."

Approach: if purpose is not stock, mining, fish & wildlife, recreation, wildlife, or navigation and source minor type not waste & seepage or subirrigation and point of diversion does not have 3 quarter sections.
Ref: VI.F.2. (page 258, 265)

POINT OF DIVERSION B.

"Point of diversion should have at least 1 quarter section."

Approach: if government lot or subdivision lot and point of diversion has no quarter sections.
Ref: VI.E.2. (page 254)

POINT OF DIVERSION C.

"Secondary POD: move to remark."

Approach: if POD type is marked as 'secondary'.
Ref: VI.F.1. (page 257)

POINT OF DIVERSION AND PLACE OF USE A.

"Point of diversion and place of use TRS not equal for well (WL) means of diversion."

EXHIBIT XII-2 (cont.)

Approach: if means of diversion = well and no CV (conveyance) remark and POD TRS/County does not equal POU TRS/County.

POINT OF DIVERSION AND PLACE OF USE B.

"Point of diversion and place of use legals do not match."

Approach: If purpose = irrigation, stock, wildlife, recreation, or fish & wildlife, and means of diversion = natural overflow, subirrigation, direct from source, instream, or intake and POD # 1 does not match POU # 1, POD # 2 does not match POU # 2, etc. This error will also be generated if the # of PODs do not match the # of POUs.

Ref: VI.F.3.e and g. (page 264)

IX.C.1. (page 425)

X.D.1. (page 452)

PRIORITY DATE A.

"Priority date indicates end of season: check origin."

Approach: if priority date month & day = 12/19, 3/19, 6/19, or 9/19 and the origin not = modified by rule or amended.

Ref: VI.J.c. (page 301)

PRIORITY DATE B.

"GW issue: correct priority date, delete old priority data issue and add P482, P484, and or P354."

Approach: if P510,P525,P530 P540 remark and not P482, P484 or P354 remark.

PRIORITY DATE C.

"Priority date predates May 01, 1888 or July 5, 1873 (Indian cession date): add P490 remark."

Approach: if priority date predates Indian cessions date (01-MAY-1888) and no P490.

Ref: VI.J.1.k. (page 309)

PRIORITY DATE D.

"Priority date post dates Water Resources Survey, remove PL remark."

EXHIBIT XII-2 (cont.)

Approach: if priority date post dates Water Resource Survey (WRS) date (stored in computer) and P235, P240, P245, P250, P255, P260, P261, P262, or P263. If no WRS for county: skip. Ref: VII.D.2.b. (page 365)

PURPOSE A.

"Households > 1: change purpose to multiple domestic(MD)."

Approach: if purpose = domestic and no. of households > 1.
Ref: VIII.A.1. (page 395)

PURPOSE B.

"Check households: change to lawn and garden(LG), if applicable."

Approach: if domestic or multiple domestic and households = blank or 0 and acres <.

PURPOSE C.

"(purpose descr) purpose: households = zero or null."

Approach: if domestic or multiple domestic and households is 0 or null.

PURPOSE D.

"Multiple domestic purpose: households less than 2."

Approach: if purpose = multiple domestic and households < 2.

PURPOSE E.

"Irrigation purpose, max acres < 5: check purpose and/or acreage."

Approach: if purpose = irrigation and max acres < 5.

RELATED RIGHTS A.

"Non active claim in related rights relationship."

Approach: if any water rights in a related rights relationship do not have a status of active (ACTV).

RELATED RIGHTS C.

EXHIBIT XII-2 (cont.)

"Place of use issue remark exists on supplemental claim: add S150 remark."

Approach: if water right in related rights supplemental and PL issue and no S150

RELATED RIGHTS C.

"Place of use issue remark exists on supplemental claim: add S150 remark."

Approach: if any water rights in a supplemental relationship have a PL issue remark and no S150 remark. Ref: VII.E.3.d. (page 383)

RELATED RIGHTS E.

"Supplemental related right missing max acres."

Approach: if water right in related rights supplemental and 0 or blank maximum acres in related rights tab.

RELATED RIGHTS F.

"Sum of flow for supplemental / max acres > 60 : add S140."

Approach: if sum the flow rate of all water rights in supplemental relationship in GPM (1 cfs = 448.8 gpm) and divide by max acres in related rights tab; if the result is > 60 and there is no S140.

Ref: VII.E.3.a. (page 380, 381)

RELATED RIGHTS – ASSOCIATED A.

"Check associated rights: no new appropriations number listed."

Approach: if associated rights in related rights tab and one of the rights is not a new appropriations number.

REMARKS A.

"Verify instream (IN) or intake (IL) means of diversion and remove flow rate and volume if applicable: Run standards."

EXHIBIT XII-2 (cont.)

Approach: if purpose is not fish and wildlife, stock, irrigation, or domestic, multiple domestic, or lawn and garden and means of diversion is instream or inlake, owner not = Department of Fish, Wildlife, and Parks.
Ref: X.B.3.c. (page 443)

REMARKS B.

"Exempt right: remove P370 remark."

Approach: if purpose = stock or domestic and means of diversion = direct from source or instream, exempt right box is checked, and P370 remark exists.
Ref: VI.I.3.c. (page 296)

REMARKS C.

"No flow rate issue (F205, F210): add remark if applicable."

Approach: if purpose = stock or domestic and S/G = G and flow rate > 35 gpm, flow origin not in ('KEEP') and no F205 or F210.
Ref: VIII.B.3.a. (page 398, 399) IX.A.3.b. (page 418)

REMARKS E.

"This type of irrigation requires only one data source to confirm: delete PL issue remark."

Approach: if purpose = irrigation and the irrigation type is natural overflow or subirrigation, and priority date predates the Water Resource Survey (date stored in computer) and there is only one PL issue remark (P235 or P240 and one of these is the only PLIS remark).
Ref: VII.D.2.c. (page 367, 368)

REMARKS E1.

"PL issue and no F180."

Approach: If purpose = irrigation and irrigation type not water spreading (ws) and there is a PL issue remark and no F180 remark.

REMARKS F.6P

"D7 remark exists: move information to claim history tab."

Approach: if D7 remark exists.

EXHIBIT XII-2 (cont.)

REMARKS G.

"Legacy issue remark exists: convert remark to valid code."

Approach: if '1Z', '2Z', '3Z', '4Z' issue remark exists.

REMARKS G.

"Legacy information remark exists: convert remark to valid code."

Approach: if '1Z', '2Z', '3Z', '4Z' information remark exists.

REMARKS I.

"P235, P270, P286, or P283 acreage value < .01: add acreage or change remark code."

Approach: if P235, P270, P286, or P283 variable 3 value < .01.

REMARKS – P644 A.

"Natural overflow: add P644."

Approach: if purpose = irrigation and irrigation type = natural overflow and no P644 remark.

Ref: VI.C.3.c. (page 225)

-- BEAN LAKE CHECKS --

REMARKS – P721_A

"P721 EXISTS: REMOVE AND ADD CORRECT BEAN LAKE REMARK."

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P721 remark Exists.

Ref: VI.C.3.a. (page 223, 224)

REMARKS – P721 P723 B.

"P723 remark exists: remove P721 remark."

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P723 and P721 remark exists.

EXHIBIT XII-2 (cont.)

REMARKS – P721 P723 C.

"Remove P721 remark: add P723 remark."

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P721 remark exists.

REMARKS – P724 A

"P724 REMARK MISSING"

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and no P724 remark and no issue remark.

REMARKS – P724 B

"P724 REMARK WITH ISSUE REMARKS"

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P724 remark and issue remark.

REMARKS – P725 A

"P725 REMARK MISSING"

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and no P725 remark and issue remark.

REMARKS – P725 B

"P725 REMARK WITH ISSUE REMARKS"

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P725 remark and no issue remark.

REMARKS – P724-P725 A

"P724-P725 EXISTS: CHECK CLAIM"

Approach: if purpose = RC(recreation), WI(wildlife), or FW(fish & wildlife) and P724 and P725 remark.

EXHIBIT XII-2 (cont.)

--BEAN LAKE REMARKS --

REMARKS – S140 A

"S140 remark exists: remove S140 remark."

Approach: if purpose = irrigation and irrigation type is subirrigation or natural overflow and S140 remark exists.

RESERVOIRS A.

"Reservoir and attached POD legals should match."

Approach: reservoir and a point of diversion with a means of diversion of dam and the TRS quarter sections are not the same.

RESERVOIRS B.

"Diversion means for onstream reservoir: should be dam."

Approach: if means of diversion does not = dam, dam/pit, or pit and onstream reservoir.

Ref: VI.G.2. (page 280)

RESERVOIRS C.

"Reservoirs C – Missing reservoir data."

Approach: if R55 or R56 remark and reservoir capacity, dam height, or surface area field is blank.

RESERVOIRS D.

"R77 remark exists, but no reservoir volume."

Approach: if R77 remark exists and no reservoir capacity.

RESERVOIRS E.

"Error in reservoir capacity and no R77 remark."

EXHIBIT XII-2 (cont.)

Approach: if means of diversion = dam and surface acres x depth x .4 does not equal the reservoir capacity and no R77 remark.

Ref: VI.H.3.d. (page 286)

RESERVOIRS F.

"Error in reservoir capacity for means of diversion of pit(PT) and no R77 remark."

Approach: if means of diversion = pit and surface acres x depth x .5 does not equal the reservoir capacity and no R77 remark.

Ref: VI.H.3.d. (page 286)

RESERVOIRS G.

"R75 missing; check for reservoir worksheet in file."

Approach: if reservoir capacity > 15 acre-feet and < 50 acre-feet and R55, R56 and no R75 remark.

RESERVOIRS H.

"Reservoir capacity >= 50, R75 remark missing: check for reservoir worksheet in file."

Approach: if reservoir capacity >= 50 and no R75 remark.

Ref: VI.H.2.b.3. (page 287)

RESERVOIRS I.

"Reservoir capacity >= 50, R55, R56 remark exists: need reservoir worksheet, cannot estimate."

Approach: if reservoir capacity >= 50 and an R55 or R56 remark exists.

RESERVOIRS J.

"Reservoir capacity zero or null and no R100 remark: input reservoir data or add R100 if applicable."

Approach: if reservoir capacity is blank or 0 and no R100 remark.

EXHIBIT XII-2 (cont.)

RESERVOIRS K.

"Reservoir and F41 remark exists, but no V9 remark: add V9 remark."

Approach: if reservoir record exists and a F41 remark exists, but no V9 remark.
Ref: VII.C.3.a. (page 356)

RESERVOIRS L.

"Reservoir, V9 and F41 remarks exists, but flow rate zero or null: add flow rate if applicable."

Approach: if reservoir record exists and a F41, V9 remark exists, but flow rate is zero or null.
Ref: VII.B.4.a. (page 338, 339)

RESERVOIRS M.

"Reservoir, F41 & V9 remarks exist, but volume exists: remove volume if applicable."

Approach: if reservoir record exists and a F41, V9 remark exists, and volume exists.
Ref: VII.C.3.a. (page 356)

RESERVOIRS N.

"Possible reservoir name in source name."

Approach: if any source name in the point of diversion has any of the following in the source name:

A parenthesis anywhere in the name (typically this denotes a reservoir).
The word 'reservoir', 'dam' or 'pond'.

SOURCES A.

"Multiple source names exist."

Approach: if multiple points of diversion in a water right contain different source names.

SOURCES B.

"Surface/Ground water code should be surface(S): check flow rate."

EXHIBIT XII-2 (cont.)

Approach: if S/G code = Groundwater(G) and means of diversion = US(undeveloped spring), BK(bucket), DD(diversion dam), DK(dike), DM(dam), DT(ditch), HG(headgate), IN(instream), LS(direct from source), or NO(natural overflow).

SOURCES C.

"Surface/Ground water code should be groundwater (G): check flow rate."

Approach: if S/G code = Surface(S) and means of diversion = DS (developed spring), SB (spring box), SI (sub irrigation).

SOURCES D.

"Ground water issue remark exists and S/G code = surface(S)."

Approach: if S/G code = S and there is a P482, P500, P505, P515, or P516 remark.

TERMINATED CLAIM A.

"Claim is withdrawn, terminated, or dismissed: add withdrawn claim(TC, T5, T9) remark."

Approach: if status is withdrawn and no TC remark.
Ref: XI.E.2.a. (page 472)

TERMINATED CLAIM B.

" Active status and withdrawn claim(TC,T5,T9) remark: check file and delete TC remark if necessary."

Approach: if water right status is active and no TC remark.

TYPE OF HISTORICAL RIGHT A.

" Historical type not decreed(DECR), filed(FILE), use(USE), or reserved(RSRV)."

Approach: if type of right is not decreed, filed, use, or reserved.

TYPE OF HISTORICAL RIGHT B.

"Historical type of right is null and no P361 or P372 remark."

EXHIBIT XII-2 (cont.)

Approach: if type of right is blank and no P361 or P372 remark.
Ref: VI.I.3.d. (page 296, 297)

TYPE OF HISTORICAL RIGHT C.

"Reserved right: check for examination.

Approach: if the type of right is reserved and any origin does not equal claimed.

TYPE OF HISTORICAL RIGHT D.

"Historical type decreed: missing claim history information.

Approach: if 'DECREED' and historical appropriator is null or historical source is null or historical priority date is null or historical document number is null.

TYPE OF HISTORICAL RIGHT E.

"Historical type decreed: missing flow description or miners inches information."

Approach: if 'DECREED' and versions.historical flow description is null and versions.historical miners inches is null.

VOLUME A.

"Add applicable volume issue remark."

Approach: if purpose = domestic and no reservoir and hours per day >10 to produce the volume and no V85, V70, V77, V80, V85, V86, V100, V105, or V111.
Ref: VIII.C.3.a. (page 405, 406)

VOLUME B.

"Non-domestic purpose, hours/day > 24 and no V24 remark: add V24 remark."

Approach: if purpose is not domestic and volume is not feasible (greater than 24 hours per day) and no V24 remark.

CACULATION:

Volume (in same units as flow rate) divided by flow rate per hour divided by days of use is hours per day.

EXHIBIT XII-2 (cont.)

VOLUME C.

"Purpose is stock (ST), reservoir record exists, and USA owned, but no volume: add volume."

Approach: if purpose = stock, reservoir record exists, and USA owner and no volume.

Ref: IX.B.2. (page 421, 422)

VOLUME E.

"Purpose is stock (ST), no reservoir record exists, and USA owned, but volume exists: delete volume."

Approach: if purpose = stock and no reservoir and USA owner and volume > 0.

Ref: IX.B.2. (page 421)

VOLUME G.

"Review error check documentation for error details: add V40 remark."

Approach: if purpose = irrigation, reservoir record, type of right is filed or use, no V9, no V40 and the claimed volume > 2 x reservoir capacity.

Ref: VII.C.3.a. (page 355, 356)

VOLUME J.

"0 or null volume: check origin ('vol_orgn')."

Approach: if volume = 0 and the origin = claimed or amended and no V90, V50, V95, V96, or V97 remark.

Means of diversion description	Database code
BUCKET	BK
DAM	DM
DAM/PIT	DP
DEVELOPED SPRING	DS
DIKE	DK
DITCH	DT
DITCH/GRAVITY FLOW	DG
DIVERSION DAM	DD
DRAIN DITCH	DR
ELECTRIC PUMP	EP

FLOWING	FL
FUELED PUMP	FP
GEOHERMAL HEATING	GA
GRAVITY FLOW/DIRECT	GD
HAND PUMP	HP
HEADGATE	HG
HEADGATE W/DITCH OR PIPELINE/FLOOD AND DIKE	HF
INFILTRATION GALLERY	IG
INLAKE	IL
INSTREAM	IN
LIVESTOCK DIRECT FROM SOURCE	LS
MULTIPLE	DC
MULTIPLE	MU
NATURAL CARRIER	NC
NATURAL OVERFLOW	NO
OTHER	XX
OTHER DIVERSION	OD
PIPELINE	PL
PIT	PT
PIT/DAM	PD
PUMP	PM
PUMP/FLOOD AND DIKE	PF
PUMP/GRAVITY FLOW	PG
PUMP/HEADGATE W/DITCH OR PIPELINE	PH
PUMP/HEADGATE W/DITCH OR PIPELINE/FLOOD AND DIKE	PA
SPRING BOX	SB
SUBIRRIGATION	SI
SUMP	SM
UNDEVELOPED SPRING	US
UNKNOWN	UN
WELL	WL
WINDMILL	WM

Purpose description	Database Code
AGRICULTURAL SPRAYING	AS
AUGMENTATION	AG
COMMERCIAL	CM
DEWATERING	DE
DOMESTIC	DM
EROSION CONTROL	EC
FIRE PROTECTION	FP
FISH AND WILDLIFE	FW
FISH RACEWAYS	FR
FISHERY	FS
FLOOD CONTROL	FC
FLOW THROUGH FISH POND	FF
GEOHERMAL	GE
GEOHERMAL HEATING	GH
INDUSTRIAL	IN
INSTITUTIONAL	IS
IRRIGATION	IR
LAWN AND GARDEN	LG
MINING	MN
MULTIPLE DOMESTIC	MD

MUNICIPAL	MC
NAVIGATION	NV
OBSERVATION AND TESTING	OT
OIL WELL FLOODING	OF
OTHER PURPOSE	OP
OTHER PURPOSE	XX
POLLUTION ABATEMENT	PA
POWER GENERATION	PG
POWER GENERATION, NONCONSUMPTIVE	PN
RECREATION	RC
SALE	SL
SEDIMENT CONTROL	SC
STOCK	ST
STORAGE	SG
UNKNOWN	XO
WATER MARKETING	WM
WATERFOWL	WF
WILDLIFE	WI
WILDLIFE/WATERFOWL	WW

Water right type description	Database code
62-73 GROUND WATER RECORD	62GW
CONSERVATION DISTRICT RECORD	CDWR
CONVERTED TERMINATES	NAPP
EXEMPT RIGHT	EXEX
GROUND WATER CERTIFICATE	GWCT
HISTORIC DECREE	HDRT
INTER-STATE CLAIM	ITSC
IRRIGATION DISTRICT	IRRD
POWDER RIVER DECLARATION	PRDL
PROVISIONAL PERMIT	PRPM
RESERVED CLAIM	RSCL
STATEMENT OF CLAIM	STOC
STOCKWATER PERMIT	STWP
TEMPORARY PERMIT	TPRP
UNUSED ADJUDICATION NUMBER	NNAD
WATER RESERVATION	WRWR

EXHIBIT XII-3

ERROR CHECK REPORT

June 2, 2010
41A 95378-00

Page 1 of 2
Error Check Abstract

Date Received: April 30, 1982
Fee Owed: N
Exempt: N
Implied Claim: N
Checked by: JOHN RASMANN
Exam Begin Date: 05/24/2010
Exam End Date: NO Date

ERROR CHECK ABSTRACT OF WATER RIGHT CLAIM RED ROCK RIVER BASIN 41A

IMPORTANT NOTICE

THIS REPORT IS FOR INTER-DEPARTMENTAL USE ONLY AND IS NOT INTENDED FOR USE IN ANY COURT PROCEEDING, LEGAL ARGUMENT, OR OFFICIAL BUSINESS.

Water Right Number: 41A 95378-00 STATEMENT OF CLAIM

Version: 1 -- ORIGINAL RIGHT
Status: ACTIVE

Owners: SNOWLINE GRAZING ASSN
PO BOX 1281
DILLON, MT 59725 1281

Owner Id: 3786

*Priority Date: DECEMBER 31, 1930 Priority Origin: MODIFIED BY RULE
Enforceable Priority Date: DECEMBER 31, 1930

Type of Historical Right: USE Hist Origin: CLAIMED

*Purpose (use): MULTIPLE DOMESTIC

Flow Rate: 10.00 GPM

Volume: 16.60 AC-FT Hours/day to achieve volume: 24.63

Households: 4

Source Name: GROUNDWATER
Source Type: GROUNDWATER

Point of Diversion and Means of Diversion:

ID	Type	Govt Lot	Qtr	Sec	Sec	Twp	Rge	County
1	PRIM		SESWSE	21	14S	7W	BEAVERHEAD	

Diversion Means: WELL

POD Origin: CLAIMED

Source Origin: CLAIMED

Period of Use: JANUARY 1 TO DECEMBER 31

Place of Use:

ID	Acres	Govt Lot	Qtr	Sec	Sec	Twp	Rge	County
1			SESWSE	21	14S	7W	BEAVERHEAD	

THE FOLLOWING INFORMATION REMARKS EXIST.

P164 STARTING IN 2008, PERIOD OF DIVERSION WAS ADDED TO MOST CLAIM ABSTRACTS, INCLUDING THIS ONE.

THE FOLLOWING ISSUE REMARKS EXIST.

V105 THE CLAIMED VOLUME APPEARS TO BE EXCESSIVE FOR THE CLAIMED PURPOSE. AVAILABLE DATA SUPPORT A VOLUME OF 6 ACRE-FEET.

EXHIBIT XII-3 (cont.)

June 2, 2010
41A 95391-00

Page 1 of 2
Error Check Abstract

Date Received: April 30, 1982
Fee Owed: N
Exempt: N
Implied Claim: N
Checked by: JOHN RASMANN
Exam Begin Date: 06/01/2010
Exam End Date: NO Date

ERROR CHECK
ABSTRACT OF WATER RIGHT CLAIM
RED ROCK RIVER
BASIN 41A

IMPORTANT NOTICE

THIS REPORT IS FOR INTER-DEPARTMENTAL USE ONLY AND IS NOT INTENDED FOR USE IN
ANY COURT PROCEEDING, LEGAL ARGUMENT, OR OFFICIAL BUSINESS.

Water Right Number: 41A 95391-00 STATEMENT OF CLAIM

Version: 1 -- ORIGINAL RIGHT
Status: ACTIVE

Owners: SNOWLINE GRAZING ASSN
PO BOX 1281
DILLON, MT 59725 1281

Owner Id: 3786

*Priority Date: DECEMBER 31, 1890 Priority Origin: MODIFIED BY RULE

Enforceable Priority Date: DECEMBER 31, 1890

Type of Historical Right: USE

Hist Origin: CLAIMED

Purpose (use): STOCK

*Flow Rate: A SPECIFIC FLOW RATE HAS NOT BEEN DECREED BECAUSE THIS USE
CONSISTS OF STOCK DRINKING DIRECTLY FROM THE SOURCE, OR FROM A
DITCH SYSTEM. THE FLOW RATE IS LIMITED TO THE MINIMUM AMOUNT
HISTORICALLY NECESSARY TO SUSTAIN THIS PURPOSE.

*Volume: THIS RIGHT INCLUDES THE AMOUNT OF WATER CONSUMPTIVELY USED FOR
STOCK WATERING PURPOSES AT THE RATE OF 30 GALLONS PER DAY PER
ANIMAL UNIT. ANIMAL UNITS SHALL BE BASED ON REASONABLE CARRYING
CAPACITY AND HISTORICAL USE OF THE AREA SERVICED BY THIS WATER
SOURCE.

Source Name: SPRING, UNNAMED TRIBUTARY OF BIG BEAVER CREEK, WEST FORK

Source Type: SURFACE WATER

S30 ALSO KNOWN AS SHIPE'S SPRING

*Point of Diversion and Means of Diversion:

ID	Type	Govt Lot	Qtr	Sec	Sec	Twp	Rge	County
1	PRIM		SENWSE	6	16S	6W	BEAVERHEAD	

Diversion Means: LIVESTOCK DIRECT FROM SOURCE

POD Origin: MODIFIED BY RULE

Source Origin: MODIFIED BY RULE

C130 PIPELINE IS USED TO CONVEY WATER.

Period of Use: JANUARY 1 TO DECEMBER 31

Page 1 of 2

EXHIBIT XII-4

REVIEW ABSTRACT

October 20, 2010
41T 144704-00

Page 1 of 2
Review Abstract

REVIEW ABSTRACT OF WATER RIGHT CLAIM

IMPORTANT NOTICE

AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM CHANGED IN ACCORDANCE WITH THE SUPREME COURT RULES GOVERNING THE EXAMINATION OF THIS CLAIM.

Water Right Number: 41T 144704-00 STATEMENT OF CLAIM

Version: 1 -- ORIGINAL RIGHT

Status: ACTIVE

Owners: PATRICK JOHNSON
HC 73 BOX 22
LLOYD, MT 59535

GEOFFREY M JOHNSON
PINWHEEL J RANCH
HC 73 BOX 22
LLOYD, MT 59535

PINWHEEL J RANCH LLC
3421 6TH AVE S
GREAT FALLS, MT 59405

***Priority Date:** JUNE 30, 1939

Enforceable Priority Date: JUNE 30, 1939

Type of Historical Right: USE

Purpose (use): STOCK

***Flow Rate:** A SPECIFIC FLOW RATE HAS NOT BEEN DECREED FOR THIS USE FROM THIS ONSTREAM RESERVOIR. THE FLOW RATE IS LIMITED TO THE MINIMUM AMOUNT HISTORICALLY NECESSARY TO SUSTAIN THIS PURPOSE.

***Volume:** THIS RIGHT INCLUDES THE AMOUNT OF WATER CONSUMPTIVELY USED FOR STOCK WATERING PURPOSES AT THE RATE OF 30 GALLONS PER DAY PER ANIMAL UNIT. ANIMAL UNITS SHALL BE BASED ON REASONABLE CARRYING CAPACITY AND HISTORICAL USE OF THE AREA SERVICED BY THIS WATER SOURCE.

Source: - UNNAMED TRIBUTARY OF LION COULEE

Source Type: SURFACE WATER

Point of Diversion and Means of Diversion:

<u>ID</u>	<u>Govt Lot</u>	<u>Qtr</u>	<u>Sec</u>	<u>Twp</u>	<u>Rge</u>	<u>County</u>
1		NE	SE	30	25N	19E BLAINE

Period of Diversion: JANUARY 1 TO DECEMBER 31

Diversion Means: DAM

EXHIBIT XII-4 (cont)

October 20, 2010
41T 144704-00

Page 2 of 2
Review Abstract

Reservoir: ON STREAM **Reservoir Name:** EAST BUTTE #1

<u>Govt Lot</u>	<u>Qtr Sec</u>	<u>Sec</u>	<u>Twp</u>	<u>Rge</u>	<u>County</u>
	NESENW	30	25N	19E	BLAINE

Diversion to Reservoir: DIVERSION # 1

Dam Height: 13.00 FEET

Depth: 10.00 FEET

Surface Area: 1.00 ACRES

Capacity: 4.00 ACRE-FEET

THE CAPACITY, DAM HEIGHT, AND SURFACE AREA HAVE BEEN ESTIMATED BY
DNRC.

Period of Use: JANUARY 1 to DECEMBER 31

Place of Use:

<u>ID</u>	<u>Acres</u>	<u>Govt Lot</u>	<u>Qtr Sec</u>	<u>Sec</u>	<u>Twp</u>	<u>Rge</u>	<u>County</u>
1			NESENW	30	25N	19E	BLAINE

Remarks:

WATER RIGHT OWNERSHIP UPDATE RECEIVED 06/30/1995.

WATER RIGHT OWNERSHIP UPDATE RECEIVED 02/06/1995.

OWNERSHIP UPDATE RECEIVED

OWNERSHIP UPDATE TYPE 608 # 8117 RECEIVED 04/11/2003.

OWNERSHIP UPDATE TYPE 608 # 8119 RECEIVED 04/11/2003.

REVIEWED BY : JENNIFER SADAK

DATE:

Summary Index and Decree Preparation Instructions

Each of the indexes serves a purpose. Avoid doing more than the purpose of the index.



- Limit research to the index purpose. Be aware there are similar indexes for different purposes. You may want to look through this entire instruction booklet before starting.
- Bring any remarks that are not printing correctly to the Bureau Chief's attention.
- Custom indexes can be run for special situations. Indexes are available by request in Microsoft Excel.
- Make sure the list of interbasin transfers has been given to the Bureau Chief (before summary preparation indexes are run) to be included in the decree.
- Every unique situation will not be captured here. Be on the look out.

Index A: Reserved Claims Index

Category: Reserved Claims

Index Criteria: All reserved claims and statements of claim with "R" type of right

Index data elements: Water right number, historical type, original owner, flow rate, volume, priority date, all remarks

Purpose of Index: Change type of right from statement of claim to reserved claim.

Approach: Verify that all claims coded as 'Reserved' have their claim type listed as Reserved Claim (RSCL) rather than Statement of Claim (STOC). Change those claims that show Statement of Claim as the type to Reserved Claim. Be aware that the opposite may also be true: a reserved right may in fact be a statement of claim.

Example: Review the columns labeled 'Typ:' and 'Hist:' for consistency.

12-04-2007 10:18 am

41QJ - RESERVED CLAIM INDEX (RSCL, STOC)

Page 2 of 4

Wr# 41QJ-78830-00	Typ: RSCL	Hist: RSR V	Flow:	PrtY Dt: 1926-04-17	Vol:	Vol Rmk: THE FLOW RATE AND VOLUME ARE LIMITED TO THE MINIMUM AMOUNT NECESSARY TO SUSTAIN THIS PURPOSE. THIS RIGHT SHALL CONTINUE TO BE UTILIZED IN ACCORDANCE WITH HISTORICAL PRACTICES.
Owner:		USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)			Owner I 2134	

Wr# 41QJ-78831-00	Typ: RSCL	Hist: RSR V	Flow:	PrtY Dt: 1926-04-17	Vol:	Vol Rmk: THE FLOW RATE AND VOLUME ARE LIMITED TO THE MINIMUM AMOUNT NECESSARY TO SUSTAIN THIS PURPOSE. THIS RIGHT SHALL CONTINUE TO BE UTILIZED IN ACCORDANCE WITH HISTORICAL PRACTICES.
Owner:		USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)			Owner I 2134	

Wr# 41QJ-78834-00	Typ: RSCL	Hist: RSR V	Flow:	PrtY Dt: 1926-04-17	Vol:	Vol Rmk: THE FLOW RATE AND VOLUME ARE LIMITED TO THE MINIMUM AMOUNT NECESSARY TO SUSTAIN THIS PURPOSE. THIS RIGHT SHALL CONTINUE TO BE UTILIZED IN ACCORDANCE WITH HISTORICAL PRACTICES.
Owner:		USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)			Owner I 2134	

Index B: Reserved Claims Index

Category: Reserved Claims

Index Criteria: All reserved claims*

Index data elements: Water right number, historical type, original owner, flow rate, volume, priority date, all remarks

Purpose of Index: Verify the correct remarks were applied to reserved claims.

Approach: Verify the correct remark was applied to the reserved right. Remarks that are necessary depend on the basin and any specific court orders directing the examination of reserved claims. Each basin is unique due to various treaties and compact commission work.

Typically, M30 (Federal and Indian rights claimed as reserved and have NOT been examined) or P720 (BLM rights claimed and have been examined) may need to be added to the claim. Review the claim examination manual (pp.188-191) as it contains some remarks pertinent to Federal and Indian Reserved Rights. Verify that the court order to examine the basin reserved rights was followed. If you do not have the court order, request a copy from the Adjudication Bureau Chief.

Replace P722 or P356 with P720.

*This index will show only reserved rights and will not show any corrections that may have been made in Index A.

Example: The highlighted remarks require updating to P720 and P725, respectively.

Wr# 41QJ-78751-00	Typ: RSCL	Hist: RSR V	Flow:	PrtY Dt: 1926-04-17	Vol:	Vol Rmk: THE FLOW RATE AND VOLUME ARE LIMITED TO THE MINIMUM AMOUNT NECESSARY TO SUSTAIN THIS PURPOSE. THIS RIGHT SHALL CONTINUE TO BE UTILIZED IN ACCORDANCE WITH HISTORICAL PRACTICES.
ISSU	P722	THIS CLAIM FOR A RESERVED WATER RIGHT IS BASED ON PUBLIC WATER RESERVE NO. 107 CREATED BY EXECUTIVE ORDER DATED APRIL 17, 1926. IT IS NOT CLEAR WHETHER THE CLAIMED PURPOSE IS WITHIN THE PURPOSES CONTEMPLATED IN THE RESERVATION.				
ISSU	P723	THE MONTANA SUPREME COURT HAS INSTRUCTED THE WATER COURT TO HOLD A HEARING ON THIS CLAIM TO DETERMINE ITS VALIDITY. IN THE MATTER OF THE MISSOURI RIVER DRAINAGE AREA, 2002 MT 216, 311 MONT. 327.				
INFO	S30	ALSO KNOWN AS GRADY SPRING				

Index 1: Standards Index (standards not run)

Category: Standards

Index Criteria: All reserved claims and statements of claim where the standards box is NOT checked

Index data elements: Water right number, historical type, purpose, flow, volume, flow rate and volume descriptions (standards)

Purpose of Index: Verify standards were applied, and if so, correctly.

Approach: Run standards on any missed statements of claim listed in the index. Prior to doing so, confirm the claim has been examined and an end date is in the database. Be aware standards will not run if there are gaps in the POD record identifiers, e.g., 01, 03, 04. If this is the case, re-sort the POD by township, range and section and run standards; be aware of remarks that may be tied to specific POD record identifiers. Verify standards were NOT applied to reserved claims, according to the basin examination order.

Example: Standards have not been run, including reserved rights.

Wednesday, November 7 2007				41A - STANDARDS NOT CHECKED (RSCL, STOC)		Page 74 of 144	
Wr# 41A-77940-00	Typ: STOC	Hist: USE	Flow:	Flw Rmk:	Vol: .34	Vol Rmk:	
Wr# 41A-77941-00	Typ: STOC	Hist: RSR V	Flow: 99 GPM	Flw Rmk:	Vol: 1.27	Vol Rmk:	
Wr# 41A-77942-00	Typ: STOC	Hist: USE	Flow: 99 GPM	Flw Rmk:	Vol: .34	Vol Rmk:	
Wr# 41A-77943-00	Typ: STOC	Hist: RSR V	Flow: 99 GPM	Flw Rmk:	Vol: 1.27	Vol Rmk:	
Wr# 41A-77944-00	Typ: STOC	Hist: RSR V	Flow: 10.01 GPM	Flw Rmk:	Vol: 15.79	Vol Rmk:	

Index 2: Standards Index (standards are run)

Category: Standards

Index Criteria: All statements of claim where standards box IS checked AND there is no flow rate and no flow rate remark applied by standards OR no volume and no volume remark applied by standards. Withdrawn, denied or dismissed water rights are not included in this index.

Index data elements: Water right number, historical type, flow, volume, flow rate remarks and volume remarks

Purpose of Index: Verify standards were applied correctly.

Approach: Check flow rate and volume in the index. If there is no flow rate or volume, check that a flow rate or volume remark exists. If there is no remark generated from standards, a flow rate or volume issue may be on the claim. This can be verified by checking the Remarks Tab in the database. If neither situation applies, pull the claim and investigate. This index is also a check to make sure standards are/were working, from a database perspective.

Example: Research the database Remarks Tab for issue remarks relating to flow and/or volume.

Wr# 41QJ-210460-00	Hist: USE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: 1.6	Vol Rmk: [REDACTED]
Wr# 41QJ-210460-00	Hist: USE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: 1.6	Vol Rmk: [REDACTED]
Wr# 41QJ-212611-00	Hist: USE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: 4.16	Vol Rmk: [REDACTED]
Wr# 41QJ-212611-00	Hist: USE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: 4.16	Vol Rmk: [REDACTED]
Wr# 41QJ-212612-00	Hist: FILE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: [REDACTED]	Vol Rmk: [REDACTED]
Wr# 41QJ-212612-00	Hist: FILE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: [REDACTED]	Vol Rmk: [REDACTED]
Wr# 41QJ-212614-00	Hist: USE	Flow: [REDACTED]	Flw Rmk: [REDACTED]	Vol: [REDACTED]	Vol Rmk: [REDACTED]

Index 3: Remarks Index

Category: Remarks (all)

Index Criteria: All remarks on statement of claim

Sort by: Remark type, remark ID, full remark text

Index data elements: Remark type, remark ID, full remark text, water right number, historical type, priority date, purpose, source, flow rate, volume, maximum acres, status

Purpose of Index: Standardize all remarks; convert obsolete remarks; convert free text remarks to formatted remarks, when possible; correct misspellings, poor wording, improper formatting (and to make formatting, such as date formats, consistent).

Approach to Standardizing Formatting:

- Standardize date format to MM/DD/YYYY for all date references.
- Check for correct dates on aerial photos and water resource survey references. Make sure there are no post 1981 dates on Place of Use (PL) issues.
- Standardize acreage format to 0.00. Write out 'maximum'.
- Verify consistency between remarks.
- POU or POD should be expanded to read "place of use" or "point of diversion."
- Replace free text remark with formatted remark, if applicable. Check for formatted remarks versus free text language. Remember, running standards adds formatted flow and volume remarks that are not visible in the Remarks Tab.
- Compare A5 and A15 for appropriate use for the number of elements amended.
- Verify there are no CG remarks; these were designed for a particular DNRC post decree internal function. Delete any CG remarks and run standards if this was not corrected in Index 1.
- Verify remarks referencing more than one water right are applied to each right.
- Standardize water right number formatting in remarks, e.g., 42M 123456-00, or 30000000.
- Check all remarks that reference a POD ID number in CV, PD, and DM remarks. **Sort the PODs by TRS.** Verify that the reference is correct. Sorting at this stage ensures when **Index 16** is created, the reference is correct.
- Fix typos and misspellings. Check for hard returns in the text which will show as gaps on the index.
- Correct the Purpose and Origin for USA and DFWP campgrounds, fishing access, etc. The purpose is Institutional (IS). The origin should be changed to Modified by Rule.

Approach to Remark Conversions:

- Remove CX remarks, e.g., C160, C161, C165, C166: Add the ditch name to the database using the POD Tab (if not in LOV, then input through “Create and Maintain: Diversion/Ditch Names”). If unfamiliar with adding ditch names, refer to Ditch Memo from 2007 (see Appendix B). Delete the CX remark.
- Replace P723 remark (Bean Lake) with either P724 (no other issues) or P725 (other issues).
- Replace P353 remark with P484.
- Convert all legacy remarks. Exception **may be** TR1Z, which the Water Court suppresses from their documents.
- Check with the Bureau Chief to see which remarks are being suppressed at the time.
- Carefully consider GA (gray area), CT (change appropriation) and ST (source text) remarks for conversion to formatted remarks, if applicable.

Approach to New Tab Conversions:

- Remove the D7 remark: Information contained in decree information remarks (D7) should be entered into the Claim History Tab in the database. Delete this remark after transferring information.
- Remove the M10 and M20 remarks: Information in Multiple Use remarks M10 and M20 should be entered into the Related Rights Tab. Delete this remark after transferring information.
- Any information in a DU (duplicate right information) or an AS (associated right information) should be entered in the Related Rights Tab in the database if applicable.
- Information in P565 should be moved to the purpose clarification field in the database. Delete this remark after transferring information.
- SB (subdivision) information remarks should be transferred when possible to the subdivision information fields under the POD Tab and/or the POU Tab.

Example: Check for consistent date format and appropriate remark used for situation (0.0 acres should be P287).

<u>Rmk</u>	<u>Cd</u>	<u>Type</u>	<u>Remark</u>
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-7B-128 , DATED 8/15/1942 , APPEARS TO INDICATE 65.7 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40210-00	Typ: STOC Hist: DECR Prty: 1882-05-03 Purp:IR Flow: 112.2 GPM Vol: Acres: 80 Source: EVERSON CREEK
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-7B-128 , DATED 8/15/42 , APPEARS TO INDICATE 0 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40211-00	Typ: STOC Hist: DECR Prty: 1882-05-15 Purp:IR Flow: 2.5 CFS Vol: Acres: 240 Source: HORSE PRAIRIE CREEK
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-7B-128 , DATED 8/15/1942 , APPEARS TO INDICATE 161.73 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40212-00	Typ: STOC Hist: DECR Prty: 1882-05-15 Purp:IR Flow: 3.55 CFS Vol: Acres: 200 Source: HORSE PRAIRIE CREEK
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-7B-128 , DATED 8/15/1942 , APPEARS TO INDICATE 67.89 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40213-00	Typ: STOC Hist: DECR Prty: 1882-05-15 Purp:IR Flow: 2.33 CFS Vol: Acres: 95 Source: BLACK CANYON CREEK
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-14P-82, CXM-7B-126 , DATED 8/9/55 AND 8/15/42 RESPECTIVELY , APPEARS TO INDICATE 134.08 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40218-00	Typ: STOC Hist: DECR Prty: 1884-09-15 Purp:IR Flow: 4.63 CFS Vol: Acres: 160 Source: HORSE PRAIRIE CREEK
P286	ISSU		AERIAL PHOTOGRAPH NO(S). CXM-7B-106 , DATED 8/15/1942 , APPEARS TO INDICATE 44.94 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.
	Sts: ACTV	Wr# 41A-40219-00	Typ: STOC Hist: DECR Prty: 1885-05-15 Purp:IR Flow: 224.4 GPM Vol: Acres: 85 Source: BLACK CANYON CREEK

Example: Check for consistent remark formatting.

<u>Rmk</u>	<u>Cd</u>	<u>Type</u>	<u>Remark</u>
GI	INFO		DUNLAP CREEK APPEARS TO BE A CHANNEL OF HORSE PRAIRIE CREEK, WHICH IS HIGHLY BRAIDED. THE EXHIBITS INCLUDED WITH CASE 1292 AND THE MORE RECENT TOPOGRAPHIC MAP BOTH NAME DUNLAP CREEK. IN BOTH INSTANCES, DUNLAP CREEK BRANCHES OFF OF HORSE PRAIRIE CREEK, IS FED BY UNNAMED TRIBUTARIES AND FLOWS BACK INTO HORSE PRAIRIE CREEK.
	Sts: ACTV	Wr# 41A-95033-00	Typ: STOC Hist: DECR Prty: 1873-05-15 Purp:IR Flow: 1.65 CFS Vol: Acres: 4497 Source: HORSE PRAIRIE CREEK MAIDEN CREEK MAIDEN CREEK, SOUTH FORK UNNAMED TRIBUTARY OF MAIDEN CREEK
GI	INFO		DUNLAP CREEK APPEARS TO BE A CHANNEL OF HORSE PRAIRIE CREEK, WHICH IS HIGHLY BRAIDED. THE EXHIBITS INCLUDED WITH CASE 1292 AND THE 1988 TOPOGRAPHIC MAP BOTH NAME DUNLAP CREEK. IN BOTH INSTANCES, DUNLAP CREEK BRANCHES OFF OF HORSE PRAIRIE CREEK, IS FED BY UNNAMED TRIBUTARIES AND FLOWS INTO HORSE PRAIRIE CREEK DOWNSTREAM.
	Sts: ACTV	Wr# 41A-95034-00	Typ: STOC Hist: DECR Prty: 1873-06-15 Purp:IR Flow: 1.5 CFS Vol: Acres: 4497 Source: HORSE PRAIRIE CREEK MAIDEN CREEK MAIDEN CREEK, SOUTH FORK UNNAMED TRIBUTARY OF MAIDEN CREEK

Example: Verify consistent use of issue remarks.

<u>Rmk</u>	<u>Cd</u>	<u>Type</u>	<u>Remark</u>
A2	ISSU		AN AMENDMENT WAS SUBMITTED 02/10/2004 TO AMEND THE SOURCE, POINT OF DIVERSION, MEANS OF DIVERSION, MEANS OF CONVEYANCE, PLACE OF USE, PRIORITY DATE, AND TYPE OF HISTORICAL RIGHT. THE AMENDMENT SUBSTANTIALLY CHANGES THE ORIGINALLY FILED STATEMENT OF CLAIM.
	Sts: ACTV	Wr# 41A-164010-00	Typ: STOC Hist: USE Prty: 1922-04-01 Purp:IR Flow: 6.78 CFS Vol: Acres: 3211 Source: WASTE & SEEPAGE, UNNAMED TRIBUTARY OF DUNLAP CREEK

AMIS **ISSU** AN AMENDMENT WAS SUBMITTED ON 05/12/2006 TO AMEND THE POINT OF DIVERSION, MEANS OF DIVERSION, PLACE OF USE, FLOW RATE, PERIOD OF USE, MAXIMUM ACRES, TYPE OF RIGHT AND PRIORITY DATE. THE AMENDMENT SUBSTANTIALLY CHANGES THE ORIGINALLY FILED STATEMENT OF CLAIM.

Sts: ACTV Wr# 41A-25427-00 Typ: STOC Hist: DECR Prty: 1899-05-01 Purp: IR Flow: 6.25 CFS Vol: Acres: 1071.56 Source: COTTONWOOD CREEK

Example: Information in the D7 remark should be transferred to the Claim History Tab.

Rmk Cd	Type	Remark
D7	INFO	CASE NO. 1292 ORIGINAL APPROPRIATOR: NAY AND JACOBS SOURCE: HORSE PRAIRIE CREEK PRIORITY DATE: JUNE 1, 1865 MINERS INCHES: 200 RANK NO. PROJECT NAME: COMMENTS: Sts: WDRN Wr# 41A-163977-00 Typ: STOC Hist: DECR Prty: 1865-06-01 Purp:IR Flow:5 CFS Vol: 2100 Acres:5415 Source: HORSE PRAIRIE CREEK
D70	ISSU	TWO SEPARATE MEANS OF DIVERSION HAVE BEEN CLAIMED FOR THE POINT OF DIVERSION IN THE NESENE SEC 23 TWP 9S RGE 14W BEAVERHEAD COUNTY. Sts: ACTV Wr# 41A-120594-00 Typ: STOC Hist: DECR Prty: 1898-10-13 Purp:IR Flow:1.13 CFS Vol: Acres:137 Source: SPRING CREEK

Example: Information in the M10 remark should be transferred to the Related Rights Tab.

Rmk Cd	Type	Remark
L7	ISSU	CLAIM FILED LATE 07/01/96 . IN ADDITION TO BEING SUBORDINATE TO ALL INDIAN AND FEDERAL RESERVED WATER RIGHTS AND ALL VALID TIMELY FILED CLAIMS BASED ON STATE LAW, THIS RIGHT MAY ALSO BE SUBORDINATE TO CERTAIN PERMITS AND RESERVATIONS OF WATER. SEE SECTION 85-2-221 MCA. Sts: ACTV Wr# 41A-215761-00 Typ: STOC Hist: USE Prty: 1958-07-01 Purp:IR Flow:11.3 CFS Vol: Acres:389 Source: TRAIL CREEK
M10	INFO	THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE MULTIPLE USES OF THE SAME RIGHT. THE USE OF THIS RIGHT FOR SEVERAL PURPOSES DOES NOT INCREASE THE EXTENT OF THE WATER RIGHT. RATHER IT DECREES THE RIGHT TO ALTERNATE AND EXCHANGE THE USE (PURPOSE) OF THE WATER IN ACCORD WITH HISTORICAL PRACTICES. W094763-00, W094764-00, W094767-00. Sts: ACTV Wr# 41A-94763-00 Typ: STOC Hist: DECR Prty: 1884-06-01 Purp:ST Flow: GPM Vol: Acres: Source: RED ROCK RIVER
M10	INFO	THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE MULTIPLE USES OF THE SAME RIGHT. THE USE OF THIS RIGHT FOR SEVERAL PURPOSES DOES NOT INCREASE THE EXTENT OF THE WATER RIGHT. RATHER IT DECREES THE RIGHT TO ALTERNATE AND EXCHANGE THE USE (PURPOSE) OF THE WATER IN ACCORD WITH HISTORICAL PRACTICES. W094763-00, W094764-00, W094767-00. Sts: ACTV Wr# 41A-94764-00 Typ: STOC Hist: DECR Prty: 1884-06-01 Purp:ST Flow: GPM Vol: Acres: Source: RED ROCK RIVER
M10	INFO	THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE MULTIPLE USES OF THE SAME RIGHT. THE USE OF THIS RIGHT FOR SEVERAL PURPOSES DOES NOT INCREASE THE EXTENT OF THE WATER RIGHT. RATHER IT DECREES THE RIGHT TO ALTERNATE AND EXCHANGE THE USE (PURPOSE) OF THE WATER IN ACCORD WITH HISTORICAL PRACTICES. W094763-00, W094764-00, W094767-00.

Example: Subdivision information should be transferred to the Subdivision Tab.

Rmk Cd	Type	Remark
SB1Z	INFO	SEE WATER RIGHT FILE FOR SUBDIVISION INFORMATION. Sts: WDRN Wr# 41A-190543-00 Typ: STOC Hist: FILE Prty: Purp:FW Flow: Vol: Acres: Source: UNNAMED TRIBUTARY OF RED ROCK CREEK
SB1Z	INFO	SEE WATER RIGHT FILE FOR SUBDIVISION INFORMATION. Sts: ACTV Wr# 41A-40863-00 Typ: STOC Hist: FILE Prty: 1964-02-08 Purp:DM Flow:.04 CFS Vol: 19 Acres: Source: GROUNDWATER

**COMPLETE THE ABOVE INDEXES (A, B, 1, 2, 3) BEFORE
RUNNING THE FOLLOWING INDEXES.**

Index 4: Multiple Use Index

Category: Multiple Use

Index Criteria: All active statements of claim NOT listed in the Related Rights Tab

Index data elements: Source, priority date, owner (only one owner per water right), purpose, water right number, historical type, status, major type, minor type, UT, source, fork

Purpose of Index: Find multiple use rights and duplicate rights NOT identified in the Related Rights Tab.

Approach: Check the index for listings with the same priority date, source, and owner, and then check for a multiple use or a duplicate situation.

Example: Highlight possible multiple use relationships, check the files, and enter in the Related Rights Tab, if multiple use.

WR #	Hist	Source	Fork	UT	Minor	Major	Priority	Owner	Purpose	Owner ID
41A-95481-00	FILE	ANTELOPE CREEK		YES		SURFACE	1915-09-28	STIBAL RANCH	IR	3399
41A-95482-00	FILE	ANTELOPE CREEK		YES		SURFACE	1915-09-28	STIBAL RANCH	ST	3399
41A-52958-00	USE	ANTELOPE SPRING		NO		GROUND	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-53059-00	USE	ANTON CREEK		NO		SURFACE	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-137186-00	USE	ANTON CREEK		NO		SURFACE	1921-12-30	MONTANA, STATE OF BOARD OF LAND COMMISSIONERS	ST	7582
41A-137189-00	USE	ANTON CREEK		NO		SURFACE	1921-12-30	MONTANA, STATE OF BOARD OF LAND COMMISSIONERS	ST	7582
41A-95215-00	FILE	ARROWHEAD CREEK		NO		SURFACE	1909-10-27	HUNTSMAN, BILL G	IR	130036
41A-95514-00	FILE	ASHBOUGH CREEK		YES		GROUND	1961-01-29	TALLET, JAY P	IR	37402
41A-95564-00	FILE	ASHBOUGH SPRINGS		NO		GROUND	1911-11-24	WOLFE HEREFORD RANCH	IR	893
41A-95572-00	FILE	ASHBOUGH SPRINGS		NO		GROUND	1911-11-24	WOLFE HEREFORD RANCH	ST	893
41A-52952-00	USE	ASPEN SPRING		NO	SPRING	GROUND	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-52869-00	USE	ASPEN SPRING		NO		GROUND	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-94674-00	USE	AYERS CANYON		NO		GROUND	1881-01-01	DENHAN RANCHES INC	ST	14503
41A-53063-00	USE	AYERS CANYON		NO		SURFACE	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-53067-00	USE	AYERS CANYON SPRING		NO		GROUND	1906-11-05	USA (DEPT OF AGRICULTURE FOREST SERVICE)	ST	2110
41A-137079-00	USE	BADGER GULCH		YES		SURFACE	1932-02-28	MONTANA, STATE OF BOARD OF LAND COMMISSIONERS	ST	7582
41A-94523-00	FILE	BAILYS WARM SPRING		NO		GROUND	1892-04-25	DIXON, ROBERT D	DM	169528
41A-94524-00	FILE	BAILYS WARM SPRING		NO		GROUND	1892-04-25	DIXON, ROBERT D	ST	169528
41A-196533-00	FILE	BAILYS WARM SPRINGS		NO		GROUND	1892-04-25	DIXON, ROBERT D	IR	169528

Example: Highlight possible duplicate rights, check the files, and enter in the Related Rights Tab, if confirmed.

WR #	Hist	Source	Fork	UT	Minor	Major	Priority	Owner	Purpose	Owner ID
41A-163946-00	FILE	HORSE PRAIRIE CREEK		NO		SURFACE	1913-06-07	CENTENNIAL LIVESTOCK INC	IR	15764
41A-164048-00	DECR	HORSE PRAIRIE CREEK		NO		SURFACE	1913-06-07	CENTENNIAL LIVESTOCK INC	IR	15764
41A-163939-00	FILE	HORSE PRAIRIE CREEK		NO		SURFACE	1914-06-26	CENTENNIAL LIVESTOCK INC	IR	15764
41A-215393-00	USE	HORSE PRAIRIE CREEK		NO		SURFACE	1919-02-08	MONTANA, STATE OF BOARD OF LAND COMMISSIONERS	IR	7582

Index 5: Multiple Use Index

Category: Multiple Use

Index Criteria: All active statements of claim listed as multiple use in the Related Rights Tab

Sort by: Source, priority date, owner (only one owner), purpose

Index data elements: Source, priority date, owner, purpose, water right number, historical type, status

Purpose of Index: Verify multiple uses have different purposes and are based on the same right.

Approach: Verify related right ID and priority date are the same. If there is no match, an amendment may have been received, and the multiple use relationship should be removed.

Example: Note the Priority Date and the Related Right ID.

WR #	Type	Source	Fork	UT	Minor	Major	Priority	Owner	Purpose	Related Right ID
41A-94892-00	FILE	GRIMES CREEK		NO		SURFACE	1914-04-23	HIRSCHY, STEVEN	IR	38887
41A-94892-00	FILE	GRIMES CREEK		YES	SPRING	SURFACE	1914-04-23	HIRSCHY, STEVEN	IR	38887
41A-94835-00	USE	GRIMES CREEK		YES	SPRING	SURFACE	1914-04-24	HIRSCHY, STEVEN	ST	38887
41A-94989-00	FILE	GROUNDWATER		NO		GROUND	1920-01-01	MATADOR CATTLE CO	DM	19768

Index 6: Owner Index

Category: Owner

Index Criteria: All owners (Adjudication & New Appropriations)

Sort by: Owner name, last, first, middle initial, suffix, line 3, line 1, line 2

Index data elements: Owner ID, last name, first, middle initial, suffix, address line 1, address line 2, address line 3, owner type code

Purpose of Index: Consolidate owners and addresses; check for misspellings, transposed numbers, update rural route addresses, check for correct owner type code.

Approach: Correct any misspellings, outdated address formats, and transposed numbers. Identify duplicated records that may require consolidation in the database. Contacting owners may be necessary to determine if records are in duplication. Once confirmed, consolidate owners by following the Oracle manual, "Oracle Tips and Tricks" (pp. 4-5). If it is determined that the ownerships are not to be consolidated, a 'never consolidate' option is available in the database. Lastly, be aware that any outstanding HB22 actions will not allow records to be consolidated. As appeals get resolved, ownership can be consolidated.

Check that the Owner Type Code (BUSN, INDV, FEDA, LOCA) is correct. Homeowner associations should be designated as BUSN.

Example: Consolidate ownerships if confirmed.

Owner Id	Last	First	Middle	Suffix	Type	Address Ln 1	Address Ln 2	City, ST, Zip	Foreign
188936	BUHLER	JUNE			INDV	PO BOX 204		LIMA, MT 59739 0204	
188940	BUHLER	WELDON			INDV	PO BOX 204		LIMA, MT 59739 0204	
188941	BUHLER	WELDON			INDV	PO BOX 204		LIMA, MT 59739 0204	
271293	BUHLER LAND & CATTLE CO INC				BUSN	PO BOX 204		LIMA, MT 59739 0204	
15982	CARIE LLC				BUSN	122 E GLENDALE ST		DILLON, MT 59725 2506	
15983	CARIE LLC				BUSN	PO BOX 971118		OREM, UT 84097 1118	

Example: Update address information, including HCRs (Highway Contract Routes) to include a box number.

Owner Id	Last	First	Middle	Suffix	Type	Address Ln 1	Address Ln 2	City, ST, Zip	Foreign
248455	FELDER	GREGORY	T		INDV	PO BOX 844		JACKSON, MT 59736 0844	
13347	FIRST CONTINENTAL CORP				BUSN			DELL, MT 59724	
152879	GENTON	EDWARD			INDV	98 THISTLE BROOK PL		SPRING, TX 77382 1248	
242845	GOEDDEL, DAVID V & ALENA Z TRUST				BUSN	2115 FOREST VIEW AVE		HILLSBOROUGH, CA 94010	

Index 7: Decree Exceeded Index

Category: Decree Exceeded

Index Criteria: All active rights in the Claim History Tab with historical right type of “D”

Sort by: County, case number, priority date, source, appropriator name, miner’s inches, description

Index data elements: County, case number, priority date, source, appropriator name, miner’s inches, flow description, historical type, water right number, flow rate, volume, D5 remark, DE remarks

Purpose of Index: Identify all decree exceeded claims and notify claimants; check for consistency in original appropriator name.

Approach: Calculate the claimed flow rate in miner’s inches and compare to the decreed flow rate. Look for duplicate entries of the same decreed appropriation (same priority date, source, appropriator—be aware that some appropriators had multiple appropriations that have the same elements). Verify information is being entered in the Claim History Tab consistently (county, source, original appropriator’s name).

Example: Claim History Tab has not been completed below. Decree remarks, if any, will appear below the record.

County	Case #	Decreed Priority	Source	Appropriator	M.I.	Flow Description	Hist	WR #	Flow	Vol
XX - No County Data Exists	828	MAY 15, 1887	RED ROCK RIVER	HAINDS, JOSEPH H.	150		DECR	41A-29243-00	STOC	3.75 CFS 1599
	828	OCTOBER 15, 1887	RED ROCK RIVER	FARLEY, JAMES, CARPENTER, F.S., & FREED, M.M.	840		DECR	41A-29244-00	STOC	21 CFS 8953
	967	APRIL 15, 1885	RED ROCK RIVER	THOMPSON, HENRY	1050		DECR	41A-29241-00	STOC	26.25 CFS 11192
	967	JUNE 1, 1901	RED ROCK RIVER	LEWIS, HENRY & AL	160		DECR	41A-29245-00	STOC	4 CFS 1705
							DECR	41A-25427-00	STOC	6.25 CFS

Example: Check that the original appropriator is named consistently.

County	Case #	Decreed Priority	Source	Appropriator	M.I.	Flow Description	Hist	WR #	Flow	Vol
	1292	JULY 1, 1886	HORSE PRAIRIE CREEK	BRENNER LIVESTOCK CO	84		DECR	41A-94825-00	STOC	2.1 CFS
	1292	AUGUST 1, 1886	HORSE PRAIRIE CREEK	C.L. LIVESTOCK COMPANY	280		DECR	41A-95013-00	STOC	7 CFS
	1292	AUGUST 1, 1886	HORSE PRAIRIE CREEK	MARTIN BARRETT	54		DECR	41A-163989-00	STOC	1.35 CFS
	1292	AUGUST 1, 1886	HORSE PRAIRIE CREEK	MARTIN BARRETT	157		DECR	41A-164017-00	STOC	3.93 CFS
	1292	SEPTEMBER 1, 1886	BLOODY DICK CREEK	BRENNER LIVE STOCK COMPANY	40		DECR	41A-94811-00	STOC	1 CFS

Index 8: Reservoir Index (period of diversion)

Category: Reservoirs

Index Criteria: All reservoirs on statements of claim and **NO** keep flag in period of diversion origin.

Sort by: owner, reservoir name, water right number

Index data elements: owner, reservoir name, water right number, period of use, period of diversion (and origin), TRS, source name, P160 remark

Purpose of Index: Verify period of diversion has been obtained from owner. If unable to get information, P160 remark is added, i.e., the period of diversion from the source into storage cannot be identified.

Approach: This index is all claims with no keep flags on the period of diversion. Recall, either the claimant has provided a period of diversion AND a keep flag is designated in the database OR no period of diversion is designated and the claim has a P160 remark. **If a P160 remark is on the index, then the period of diversion should be null.**

Reminder: Many different variations on each index are available. This index can be run with reservoir data, for example.

Example: The period of diversion does not have a keep flag; correct the origin to KEEP/AMENDED in this instance.

<u>Owner Name</u>	<u>Reservoir Name</u>	<u>Water Right Id</u>	<u>Period of Use</u>	<u>Period Diversion</u> <-- <u>Origin</u>	<u>Qtr Sec</u>	<u>Sec Twp Rge</u>	<u>Source Name</u>	<u>Fork Name</u>	<u>UT</u>	<u>Minor Type</u>	<u>Major Type</u>
ANGELO, AMADEO F		41A-25434-00	JUN 25 to SEP 19	JAN 01 to DEC 31	AMEN	NWSWSW 4 16S 11W	COTTONWOOD CREEK		NO		SURFACE
ANGELO, AMADEO F		41A-25435-00	JUN 25 to SEP 19	JAN 01 to DEC 31	AMEN	SWNESW 4 16S 11W	COTTONWOOD CREEK		NO		SURFACE
ANGELO, AMADEO F		41A-25436-00	JUN 25 to SEP 19	JAN 01 to DEC 31	AMEN	NWNESW 4 16S 11W	COTTONWOOD CREEK		NO		SURFACE
BARRETT RANCH INC		41A-94483-00	MAR 01 to DEC 19	MAR 01 to DEC 19	CLAI	SENE 4 10S 13W	RAPE CREEK		NO		SURFACE

Example: A period of diversion and a P160 remark exist on this right. The period of diversion should be null.

<u>Owner Name</u>	<u>Reservoir Name</u>	<u>WR #</u>	<u>Period of Use</u>	<u>Period Diversion</u> ← <u>Origin</u>	<u>Qtr Sec</u>	<u>TRS</u>	<u>Source Name</u>	<u>Fork</u>	<u>UT</u>	<u>Minor</u>	<u>Major</u>
PETERS, CARRIE A		41A-95066-00	SEP 01 to FEB 01	SEP 01 to FEB 01	CLAI	NENENE 17 11S 11W	MEDICINE LODGE CREEK		YES		SURFACE
Rmk Cd Remark Text											
P160 THE PERIOD OF DIVERSION FROM THE SOURCE INTO STORAGE CANNOT BE IDENTIFIED.											
R55 THE CAPACITY, DAM HEIGHT, AND SURFACE AREA HAVE BEEN ESTIMATED BY DNRC.											
R75 SEE THE RESERVOIR WORKSHEET IN THE CLAIM FILE FOR ADDITIONAL RESERVOIR DATA.											
R77 THE MAXIMUM STORAGE CAPACITY OF THIS RESERVOIR MAY BE QUESTIONABLE. ACCORDING TO DNRC ESTIMATES, THE MAXIMUM STORAGE CAPACITY IS .076 ACRE-FEET.											

Example: Incomplete information, including period of diversion and no P160 has been added.

<u>Owner Name</u>	<u>Reservoir Name</u>	<u>WR #</u>	<u>Period of Use</u>	<u>Period Diversion</u> ← <u>Origin</u>	<u>Qtr Sec</u>	<u>TRS</u>	<u>Source Name</u>	<u>Fork</u>	<u>UT</u>	<u>Minor</u>	<u>Major</u>
IVERSON, VIOLA		41A-94948-00	MAY 01 to JUL 04	MAY 01 to JUL 04	CLAI	NWNENE 31 13S 9W	RED ROCK RIVER		NO		SURFACE
KONA RESIDENCE TRUST	UNNAMED RESERVOIR	41A-214697-00	JAN 01 to DEC 31						N		
KONA RESIDENCE TRUST	UNNAMED RESERVOIR	41A-215644-00	JAN 01 to DEC 31						N		
KONA RESIDENCE TRUST		41A-214653-00	JAN 01 to DEC 31	JAN 01 to DEC 31	CLAI	SESWNW 22 14S 3W	TIPTON CREEK		NO		SURFACE

Index 9: Reservoir Index

Category: Reservoirs

Index Criteria: All reservoirs on statements of claim

Sort by: Reservoir, TRS, quarter sections, reservoir name, owner, water right number

Index data elements: TRS, quarter section, reservoir name, owner, water right number, all reservoir remarks, reservoir capacity, surface area, depth, on/off stream

Purpose of Index: Identify different owners claiming the same reservoir; standardize reservoir names; standardize reservoir information.

Approach: Check for consistent naming of reservoirs, legal land descriptions and reservoir data elements (type, capacity, max depth, dam height, surface area). Cross check reservoirs in adjacent corners, i.e., NENENE may be the same reservoir claimed in the NWNWNW (section number will differ). Check for consistent remarks on shared reservoirs. (An associated right situation is possible in some multiple owner situations.)

Example: Reservoir name is not consistently applied. Review the source.

Friday, February 1 2008

41A RESERVOIR Owner Index

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Twp Rge	Sec	Qtr Sec	Reservoir Name	Type	Capacity	Max Depth	Dam Height	Surface Area	Owner Name	Water Right Id	Period Diversion	←Origin	Source Name	Fork Name	UT	Minor Type	Major Type	Purpose
10S 10W	5	NWNENW	CLARK CANYON RESERVOIR	ON	261,000.0		133.00	5,850.00	USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40854-00	JAN 01 to DEC 31	CLAI	BEAVERHEAD RIVER		NO		SURFACE	IR
		NWNENW	CLARK CANYON RESERVOIR	ON	261,000.0		133.00	5,850.00	USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40856-00	JAN 01 to DEC 31	CLAI	BEAVERHEAD RIVER		NO		SURFACE	ST
		NWNENW	CLARK CANYON RESERVOIR	ON					USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40857-00	JAN 01 to DEC 31	CLAI	CLARK CANYON RESERVOIR		NO		SURFACE	DM
		NWNENW	CLARK CANYON RESERVOIR	ON					USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40858-00	JAN 01 to DEC 31	CLAI	CLARK CANYON RESERVOIR		NO		SURFACE	IN
		NWNENW		ON					USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40859-00	NOV 01 to APR 04	CLAI	BEAVERHEAD RIVER		NO		SURFACE	FC
		NWNENW		ON					USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40860-00	JAN 01 to DEC 31	CLAI	BEAVERHEAD RIVER		NO		SURFACE	FW
		NWNENW		ON					USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	41A-40861-00	JAN 01 to DEC 31	CLAI	BEAVERHEAD RIVER		NO		SURFACE	RC
10S 11W	32	SWSWSE		ON					HANSEN LIVESTOCK CO	41A-94717-00	JAN 01 to DEC 31	CLAI	BAKER CANYON SPRINGS		NO		GROUND	ST

Index 10: Supplemental Rights Index (Other uses; not IR)

Category: Supplemental rights

Index Criteria: All S135, S155, S160 remarks on statements of claim

Sort by: Remark, owner, purpose

Index data elements: Remark, owner, purpose, water right number, status

Purpose of Index: Verify 'Other Use' supplemental rights have same owner and purpose

Approach: Verify that the supplemental rights have the same owner and purpose.

Example: This example shows a partial listing of supplemental water rights. Compare the ownership and purpose of all rights listed in the supplemental remark.

Wright 40B-16468-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 3 CFS	Hist Cnty:	Vol:	PrtY Dt: 1938-03-18	Approp:	Mnr Inches:	Descr:	Owner: DUFFY, DELILAH B
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16468-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 3 CFS	Hist Cnty:	Vol:	PrtY Dt: 1938-03-18	Approp:	Mnr Inches:	Descr:	Owner: DUFFY, RUSSELL G
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16468-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 3 CFS	Hist Cnty:	Vol:	PrtY Dt: 1938-03-18	Approp:	Mnr Inches:	Descr:	Owner: SILVERNELL, BARBARA A
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16468-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 3 CFS	Hist Cnty:	Vol:	PrtY Dt: 1938-03-18	Approp:	Mnr Inches:	Descr:	Owner: SILVERNELL, EDGAR D ESTATE
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16469-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 1.25 CFS	Hist Cnty:	Vol:	PrtY Dt: 1937-02-06	Approp:	Mnr Inches:	Descr:	Owner: DUFFY, DELILAH B
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16469-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 1.25 CFS	Hist Cnty:	Vol:	PrtY Dt: 1937-02-06	Approp:	Mnr Inches:	Descr:	Owner: DUFFY, RUSSELL G
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16469-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 1.25 CFS	Hist Cnty:	Vol:	PrtY Dt: 1937-02-06	Approp:	Mnr Inches:	Descr:	Owner: SILVERNELL, BARBARA A
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									
Wright 40B-16469-00	Typ: STOC	Status: ACTV	Purpose: MN	Hist: FILE	Flow: 1.25 CFS	Hist Cnty:	Vol:	PrtY Dt: 1937-02-06	Approp:	Mnr Inches:	Descr:	Owner: SILVERNELL, EDGAR D ESTATE
	Remarks:	INFO S135	WHENEVER THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE COMBINED TO SUPPLY WATER FOR THE CLAIMED PURPOSE, EACH IS LIMITED TO THE HISTORICAL FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE. 16468-00, 16469-00, 16470-00, 16471-00.									

Index 11: Subdivision Index

Category: Subdivision

Index Criteria: All subdivision names on statements of claim

Sort by: Subdivision name, point of diversion TRS, place of use TRS, quarter sections, lot/block.

Index data elements: Subdivision name, point of diversion TRS, place of use TRS, quarter sections, lot/block

Purpose of Index: Standardize subdivision names, lots, blocks; verify TRS.

Approach: Verify TRS is consistent for subdivision. Remove any leading zeros (fill zeros) for lot/block, i.e., Lot 001. Remove any subdivision listed as 'See remark for subdivision information' and standardize to the correct subdivision name through the LOV or a remark. Each point of diversion should be refined to at least ¼ ¼ section legal land description.

Example: Apply the correct subdivision name, standardize lot/block and refine legal land descriptions to ¼ ¼ section.

WR #	POU #	Subdivision DNRC Name/Lot Block	POU Qtrs	TRS	POD #	Subdivision DNRC Name/Lot Block	POD Qtrs	TRS
41A-95473-00	2	SEE REMARK FOR SUBDIVISION INFORMATION	SESW	14S 4W 7	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	1	SEE REMARK FOR SUBDIVISION INFORMATION BLOCK: 004		14S 4W 7	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	3	SEE REMARK FOR SUBDIVISION INFORMATION	W2SW	14S 4W 17	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	7	SEE REMARK FOR SUBDIVISION INFORMATION	E2NW	14S 4W 18	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	5	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 001	NWNW	14S 4W 18	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	9	SEE REMARK FOR SUBDIVISION INFORMATION	SE	14S 4W 18	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	6	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 002	SWSW	14S 4W 18	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	8	SEE REMARK FOR SUBDIVISION INFORMATION	W2NE	14S 4W 18	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-95473-00	4	SEE REMARK FOR SUBDIVISION INFORMATION	W2NW	14S 4W 20	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESESE	14S 4W 19
41A-92915-00	1	SEE REMARK FOR SUBDIVISION INFORMATION BLOCK: 006	SESWSW	14S 8W 4	1	SEE REMARK FOR SUBDIVISION INFORMATION BLOCK: 006	SESWSW	14S 8W 4
41A-95499-00	1	SEE REMARK FOR SUBDIVISION INFORMATION	SESWSW	14S 8W 4	1	SEE REMARK FOR SUBDIVISION INFORMATION BLOCK: 006	SESWSW	14S 8W 4
41A-185495-00	1	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 007		15S 9W 4	1	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 007		15S 9W 4
					2	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 008		15S 9W 4
41A-185495-00	2	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 008		15S 9W 4	1	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 007		15S 9W 4
					2	SEE REMARK FOR SUBDIVISION INFORMATION TRACT/LOT: 008		15S 9W 4

Index 12: Source Index

Category: Sources

Index Criteria: All sources on statements of claim

Sort by: Source name, fork, UT, minor type, point of diversion TRS

Index data elements: Source name, fork, UT, minor type, major type, point of diversion TRS, water right number, type of historical right, all source name (SN) remarks

Purpose of Index: Verify source name consistency.

Approach: Verify source name for correct spelling and format. Remove any duplication of 'Unnamed Tributary of' for claims examined prior to the database update of September 2006. Check that each POD has a source name. Do NOT assume that all PODs on the same water right are on the same source. Check for consistency in remarks such as S30, S75. Each legal land description should have at a minimum one quarter section description, with three quarter sections preferred. If no ¼ section is listed, check for a government lot as part of the legal description. (Government lot information is in Index 14.)

Example: Consistently apply remarks to sources; add missing legal description.

Source	Fork	UT	Minor	Major	Qtr Sec	Sec	Twp	Rge	WR #	Hist	Rmk Cd	Remark Text
BURNT WILLOW CREEK		NO		SURFACE	SESWSE	17	11S	8W	41A-215390-00	USE		
BURNT WILLOW CREEK		NO		SURFACE	SENWNW	19	11S	8W	41A-95513-00	FILE		
BURNT WILLOW CREEK		NO		SURFACE	NWNENE	20	11S	8W	41A-110601-00	FILE		
C L CREEK		NO		SURFACE	SENWSW	13	8S	15W	41A-95028-00	DECR	S30 S75	ALSO KNOWN AS SORENSON CREEK THE SOURCE IS A TRIBUTARY OF SELWAY CREEK.
C L CREEK		NO		SURFACE	SENWSE	14	8S	15W	41A-53122-00	USE		
C L CREEK		NO		SURFACE	NENENW	24	8S	15W	41A-95028-00	DECR	S30 S75	ALSO KNOWN AS SORENSON CREEK THE SOURCE IS A TRIBUTARY OF SELWAY CREEK.
CABIN CREEK		NO		SURFACE	SWNWSW	31	13S	10W	41A-9373-00	DECR		
CABIN CREEK		NO		SURFACE	NWNWNE	7	14S	11W	41A-94698-00	DECR		
CABIN CREEK		NO		SURFACE	SESWNE	8	14S	11W	41A-94505-00	DECR		
CABIN CREEK		NO		SURFACE	SWSESW	8	14S	11W	41A-94697-00	DECR		
CABIN CREEK		NO		SURFACE					41A-94700-00	DECR		

Example: Standardize source names.

Source	Fork	UT	Minor	Major	Qtr Sec	Sec	Twp	Rge	WR #	Hist	Rmk Cd	Remark Text
BAILYS WARM SPRING		NO		GROUND	NWNWNW	32	13S	7W	41A-94524-00	FILE		
BAILYS WARM SPRINGS		NO		GROUND	NWNWNW	32	13S	7W	41A-196533-00	FILE		
BROWN CREEK		NO		SURFACE	NENESW	29	8S	13W	41A-53154-00	USE		
BROWN'S CANYON CREEK		NO		SURFACE	SESWSE	32	8S	13W	41A-4554-00	DECR		
BROWN'S CANYON CREEK		NO		SURFACE	SESWSE	32	8S	13W	41A-4559-00	DECR		
BROWN'S CANYON CREEK		NO		SURFACE	SWNENE	8	9S	13W	41A-4554-00	DECR		
BROWN'S CANYON CREEK		NO		SURFACE	SWNENE	8	9S	13W	41A-4559-00	DECR		
BROWNS CANYON CREEK		NO		SURFACE	NENESW	28	8S	13W	41A-111102-00	USE		
BROWNS CANYON CREEK		NO		SURFACE	NWNENW	28	8S	13W	41A-111102-00	USE		
BROWNS CANYON CREEK		NO		SURFACE	NESESW	29	8S	13W	41A-111102-00	USE		
BROWNS CANYON CREEK		NO		SURFACE	NWNESW	29	8S	13W	41A-49564-00	DECR		
BROWNS CANYON CREEK		NO		SURFACE	NWNESW	29	8S	13W	41A-95553-00	DECR		
BROWNS CANYON CREEK		NO		SURFACE	SESESW	29	8S	13W	41A-53151-00	USE		
BROWNS MEAD SPRING		NO		GROUND	NWSESW	20	8S	13W	41A-53141-00	USE		
BRUNDAGE CREEK		NO		SURFACE	NE	18	13S	3W	41A-137114-00	USE		
BRUNDAGE CREEK		NO		SURFACE	NENE	19	13S	3W	41A-137113-00	USE		
BRUNDAGE CREEK		NO		SURFACE	SWNW	20	13S	3W	41A-137112-00	USE		
BRUNDAGE CREEK		YES		SURFACE	S2	9	13S	3W	41A-137094-00	USE		
BRUNDAGE CREEK		YES		SURFACE	E2	16	13S	3W	41A-137161-00	USE		
BRUNDAGE GULCH		NO		GROUND	SEENENW	28	13S	3W	41A-95485-00	FILE		
BRUNDAGE GULCH SPRING		NO		GROUND	NESE	18	13S	3W	41A-95486-00	FILE		

Example: Standardize unknown sources; remove 'unnamed tributary' and 'fork' from the source name. Enter this information into the appropriate field in the POD Tab.

Source	Fork	UT	Minor	Major	Qtr Sec	Sec	Twp	Rge	WR #	Hist	Rmk Cd	Remark Text
UNKNOWN CREEK		NO		SURFACE	NESWNE	26	14S	4W	41A-95341-00	USE		
UNNAMED SPRING		NO	SPRING	GROUND	NWNENE	20	12S	3W	41A-57016-00	USE		
UNNAMED SPRING		NO	SPRING	GROUND	NENENW	27	12S	3W	41A-57017-00	USE		
UNNAMED SPRING		NO	SPRING	GROUND	SESWNW	34	12S	3W	41A-57012-00	USE		
UNNAMED TRIBUTARY OF EAST FORK NYE CREEK		YES		SURFACE	SESESE	18	14S	1W	41A-190533-00	FILE		

Index 13: Ditch Index

Category: Ditches

Index Criteria: All ditches on statements of claim

Sort by: ditch name, point of diversion TRS, quarter sections, water right number, owner

Index data elements: Ditch name, point of diversion TRS, quarter sections, water right number, owner

Purpose of Index: Verify ditch names; verify point of diversion consistency.

Approach: Verify consistent naming of ditches. All ditches should be named according to DITCH NAME STANDARDS found in the Oracle Changes Memo from September, 2006 (see Appendix A). Recall that ditches are named using the hierarchy as laid out in the claim examination manual under Source Name Review (see Section VI.D.3). Verify that the same legal land description is applied to the POD for a particular ditch. Verify a county has been associated with each ditch name.

Example: Apply consistent legal description.

Ditch Name	Qtrs	Twp	Rge	Sec	POD #	WR #	Owner
TRAIL CREEK DITCH NO. 2	NWNWSW	10S	14 W	16	2	41A 95111-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	NESESE	10S	14 W	9	1	41A 95104-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	NESESE	10S	14 W	9	1	41A 95105-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14 W	9	3	41A 95085-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14 W	9	3	41A 95086-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14 W	9	3	41A 95087-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14 W	9	3	41A 95088-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14 W	9	3	41A 95089-00	LEMHI FRONTIER LLC
TRAIL CREEK DITCH NO. 3	SESESE	10S	14	9	3	41A 95090-00	LEMHI FRONTIER LLC

Index 14: Government Lot Index

Category: Government Lot

Index Criteria: All statements of claim that have a point of diversion and/or place of use within government lots

Sort by: TRS, quarter sections, point of diversion lot, place of use lot, water right number

Index data elements: TRS, quarter sections, point of diversion government lot, place of use government lot, water right number, PL remarks, CL remarks

Purpose of Index: Standardize government lots numbers, quarter sections, TRS.

Approach: Verify consistency with government lot legal descriptions; use GIS government lot information as a source. Attempt to refine government lot legal description to at least one ¼ section (this is a judgment call). Keep an eye out for discrepancies in government lots and legal descriptions, especially between PODs and POUs. (If a reservoir is involved, remember the reservoir record will need to be corrected in the Reservoir tab in the database, in addition to the pou and/or pod tabs). Note that misunderstandings may have led to non-government lots (Homestead Entry Survey, subdivision lot, etc.) being claimed as government lots. Also note that ¼ section descriptions are for within a section, not within a government lot.

Example: Add a legal land description for government lots.

<u>Wr Number</u>	<u>PUSE #</u>	<u>PLUSE Govt Lot</u>	<u>Pluse Qtrs</u>	<u>TWP</u>	<u>RNG</u>	<u>SCTN</u>	<u>Purpose</u>	<u>POD #</u>	<u>POD Govt Lot</u>	<u>POD Qtrs</u>	<u>TWP</u>	<u>RNG</u>	<u>SCTN</u>
41A-106739-00	2	2		14S	1W	19	IRRIGATION						
41A-106739-00	3	3		14S	1W	19	IRRIGATION						
41A-106739-00	4	4		14S	1W	19	IRRIGATION						
41A-136966-00	1	1	W2SE	13S	3W	12	STOCK	1	1	W2SE	13S	3W	12
41A-136986-00	1	4	SESW	13S	2W	18	STOCK	1	4	SESW	13S	2W	18
41A-136998-00	1	1		10S	9W	18	STOCK	1	1		10S	9W	18
41A-137007-00	1	4		13S	2W	6	STOCK	1	4		13S	2W	6

Index 15: Implied Claim Index

Category: Implied Claims

Index Criteria: All implied claims, implied claim remarks (CI) and general remarks (RM)

Sort by: Water right number, CI remark ID number, RM remark ID number

Index data elements: Water right number, remark ID, full text remark, owner, historical type, status

Purpose of Index: Verify correct remark is applied to implied claims and their parent rights.

Approach: Check for the correct remark on implied claims (C5, generally) and the associated parent claim (R15 or R16, generally). (This check is often included in Index 18: Error Check Reports for Basin.)

Example: Verify that the parent right and the implied claim are remarked appropriately.

Wr# 41A-95069-00 Typ: STOC Hist: FILE Status: ACTV Owners-id: ROGER D PETERS - 74247

Remarks: FRLB Cd: Typ: Remark Text:
INFO R15 IMPLIED CLAIM NO. 41A 182315-00 WAS AUTHORIZED AND GENERATED BASED ON INFORMATION IN THIS CLAIM.

Wr# 41A-179297-00 Typ: STOC Hist: USE Status: ACTV Owners-id: STEVEN HIRSCHY - 135120

Remarks: FRLB Cd: Typ: Remark Text:
INFO C7 THIS IMPLIED CLAIM WAS CREATED BASED ON INFORMATION IN CLAIM NO. 41A 94844 , PRIOR TO WATER COURT AUTHORIZATION BEING REQUIRED.

Wr# 41A-179298-00 Typ: STOC Hist: USE Status: ACTV Owners-id: STEVEN HIRSCHY - 135120

Remarks: FRLB Cd: Typ: Remark Text:
INFO C7 THIS IMPLIED CLAIM WAS CREATED BASED ON INFORMATION IN CLAIM NO. 41A 94844 , PRIOR TO WATER COURT AUTHORIZATION BEING REQUIRED.

Wr# 41A-179299-00 Typ: STOC Hist: USE Status: ACTV Owners-id: STEVEN HIRSCHY - 135120

Remarks: FRLB Cd: Typ: Remark Text:
INFO C7 THIS IMPLIED CLAIM WAS CREATED BASED ON INFORMATION IN CLAIM NO. 41A 94844 , PRIOR TO WATER COURT AUTHORIZATION BEING REQUIRED.

Wr# 41A-182315-00 Typ: STOC Hist: FILE Status: ACTV Owners-id: ROGER D PETERS - 74247

Remarks: FRLB Cd: Typ: Remark Text:
INFO C5 THIS IMPLIED CLAIM WAS AUTHORIZED BY THE WATER COURT BASED ON INFORMATION IN CLAIM NO. 41A 95069-00.

Index 16: Point of Diversion Sort (performed by database manager)

Category: POD

Index Criteria: All points of diversion on statements of claim

Sort by: point of diversion TRS, quarter sections, renumber

Index data elements:

Purpose of Index: Sort the PODs by TRS and eliminate any gaps.

Approach: Database personnel run this as a database function; no index is printed. (Index 3 should have caught any sorting issues with formatted remarks.)

Index 17: Place of Use Sort (performed by database manager)

Category: POU

Index Criteria: All places of use on statements of claim

Sort by: Place of use TRS, quarter sections, renumber

Index data elements:

Purpose of Index: Sort the POUs by TRS and eliminate any gaps.

Approach: Database personnel run this as a database function; no index is printed. (Index 3 should have caught any sorting issues with formatted remarks.)

Index 18: Error Check Reports for Basin

Category: Error Check Report

Index Criteria: See the Bureau Chief for criteria if needed. Criteria documents will be available at a later date.

Sort by: Water right number for entire basin

Index data elements: Error check reports saved as a PDF file for review

Purpose of Index: Review water right for errors.

Approach: Review error check report and make corrections as appropriate.

Common errors include:

- means of diversion is a pump/headgate with ditch or pipeline
- priority date predates Indian cession
- legacy remarks
- wildlife claims with direct from source
- domestic versus multiple domestic (no. of households)
- groundwater claims between 1962-1973 may be missing remarks

Example: This error check report is provided as only an example of the form. The issues on this particular error check report are captured in other indexes, i.e., standards not run (Index 1), legacy remark conversions (Index 3), and decree information (Index 7).

November 30, 2007

41A 4555-00

Standards has not been applied to this water right!Page 1 of 3
Error Check Abstract

Date Received: July 24, 1980

Fee Owed: N

Exempt: N

Implied Claim: N

Checked by:

ERROR CHECK
ABSTRACT OF WATER RIGHT CLAIM

RED ROCK RIVER

BASIN 41A

IMPORTANT NOTICE

THIS REPORT IS FOR INTER-DEPARTMENTAL USE ONLY AND IS NOT INTENDED FOR USE IN
ANY COURT PROCEEDING, LEGAL ARGUMENT, OR OFFICIAL BUSINESS.

Water Right Number: 41A 4555-00 STATEMENT OF CLAIM

Version: 1 – ORIGINAL RIGHT

Status: ACTIVE

Owners: CARIE LLC
122 E GLENDALE ST
DILLON, MT 59725 2506

Owner Id: 15982

Priority Date: MAY 20, 1886

Priority Origin: CLAIMED

Enforceable Priority Date: MAY 20, 1886

Type of Historical Right: DECREED

Hist Origin: CLAIMED

Purpose (use): IRRIGATION

Irrigation Type: FLOOD

Flow Rate: 4.75 CFS

Volume: 1,235.00 AC-FT Hours/day to achieve volume: 8.60

Climatic Area: 4 - MODERATELY LOW

Maximum Acres: 2,351.00

Acres Origin: CLAIMED

Source Name: PAINTER CREEK

Source Type: SURFACE WATER

Point of Diversion and Means of Diversion:

ID	Type	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
1	PRIM		NWNENE	6	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
2	PRIM		NWSWNE	8	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
3	PRIM		NWSENE	8	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
4	PRIM		SESENE	8	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							

November 30, 2007

41A 4555-00

Standards has not been applied to this water right!Page 2 of 3
Error Check Abstract**Point of Diversion and Means of Diversion:**

ID	Type	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
5	PRIM		NESWSW	9	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
6	PRIM		NESESW	15	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
7	PRIM		SWSWSE	15	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							
8	PRIM		NENWNE	22	9S	13W	BEAVERHEAD
Diversion Means: HEADGATE							
POD Origin: CLAIMED							
Source Origin: CLAIMED							

Period of Use:

MARCH 15 TO NOVEMBER 4

Place of Use:

ID	Acres	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
1	3.00		SWSWSW	5	9S	13W	BEAVERHEAD
2	25.00		S2NE	6	9S	13W	BEAVERHEAD
3	31.00		N2SE	6	9S	13W	BEAVERHEAD
4	20.00		SESE	6	9S	13W	BEAVERHEAD
5	12.00		S2N2NE	8	9S	13W	BEAVERHEAD
6	31.00		S2NE	8	9S	13W	BEAVERHEAD
7	3.00		NENESE	8	9S	13W	BEAVERHEAD
8	3.00		E2SESE	8	9S	13W	BEAVERHEAD
9	2.00		SWNNWN	9	9S	13W	BEAVERHEAD
10	70.00		S2NW	9	9S	13W	BEAVERHEAD
11	58.00		S2NE	9	9S	13W	BEAVERHEAD
12	152.00		SW	9	9S	13W	BEAVERHEAD
13	160.00		SE	9	9S	13W	BEAVERHEAD
14	22.00		SWNW	10	9S	13W	BEAVERHEAD
15	148.00		SW	10	9S	13W	BEAVERHEAD
16	54.00		S2SE	10	9S	13W	BEAVERHEAD
17	2.00		SWSWSW	11	9S	13W	BEAVERHEAD
18	66.00		NW	14	9S	13W	BEAVERHEAD
19	146.00		SW	14	9S	13W	BEAVERHEAD
20	20.00		SWSE	14	9S	13W	BEAVERHEAD
21	157.00		NW	15	9S	13W	BEAVERHEAD
22	158.00		NE	15	9S	13W	BEAVERHEAD
23	159.00		SE	15	9S	13W	BEAVERHEAD
24	72.00		N2SW	15	9S	13W	BEAVERHEAD
25	30.00		SESW	15	9S	13W	BEAVERHEAD
26	140.00		NE	16	9S	13W	BEAVERHEAD
27	4.00		NENESE	16	9S	13W	BEAVERHEAD
28	48.00		NE	17	9S	13W	BEAVERHEAD
29	17.00		E2NENW	22	9S	13W	BEAVERHEAD
30	2.00		NESENW	22	9S	13W	BEAVERHEAD

November 30, 2007

41A 4555-00

Page 3 of 3

Error Check Abstract

Standards has not been applied to this water right!

Place of Use:

<u>ID</u>	<u>Acres</u>	<u>Govt Lot</u>	<u>Qtr</u>	<u>Sec</u>	<u>Twp</u>	<u>Rge</u>	<u>County</u>
31	136.00		NE	22	9S	13W	BEAVERHEAD
32	160.00		NW	23	9S	13W	BEAVERHEAD
33	40.00		SWNE	23	9S	13W	BEAVERHEAD
34	80.00		N2SW	23	9S	13W	BEAVERHEAD
35	80.00		W2SE	23	9S	13W	BEAVERHEAD
36	40.00		SESE	23	9S	13W	BEAVERHEAD

Total: 2,351.00

THE FOLLOWING INFORMATION REMARKS EXIST.

AM1Z THE FOLLOWING ELEMENTS WERE AMENDED BY THE CLAIMANT ON 12/18/95: SOURCE, POINT OF DIVERSION, PERIOD OF USE, PLACE OF USE, MAXIMUM ACRES.

BEGIN ERROR CHECK SECTION

REMARKS H - LEGACY INFORMATION REMARK EXISTS: CONVERT REMARK TO VALID CODE.
TYPE OF HISTORICAL RIGHT D - HISTORICAL TYPE DECREED: MISSING CLAIM HISTORY INFORMATION.
TYPE OF HISTORICAL RIGHT E - HISTORICAL TYPE DECREED: MISSING FLOW DESCRIPTION OR MINERS INCHES INFORMATION.

Appendix A

DITCH NAME RULE	EXAMPLE
For initials used in front of the ditch name, enter the initial, then a period and a space, then the last name followed by 'ditch', 'canal', etc.	A. ALLEN DITCH A. M. GROSFIELD DITCH G. F. SHOOK-WILSON DITCH
Use a dash (-) for ditches that contain multiple names. Do not use any other character.	ALLEN-DURGAN-CHASE-ADAMS DITCH G. F. SHOOK-WILSON DITCH W. DEWART-O. SWANDAL CANAL B-F-K DITCH L-B-H-K DITCH
For ditches that are numbered, use NO. as the number abbreviation and place the number at the end of the entire name.	ADKINS DITCH NO. 1 STANCHFIELD DITCH NO. 1C DITCH NO. 1 DITCH NO. 3 AND DITCH NO. 5
For ditches that include an alpha character rather than a number, enter the letter at the end of the name. Do not place “ ”, or any other character around the letter.	ANDERSON DITCH A POST CANAL D
Abbreviate Company to CO	SOUTH RIVER RANCH CO CANAL
Spell out the word “and”. Do not use the & sign.	B AND Y DITCH
For ditches that are preceded by a number, don't spell out the number.	10 DITCH 19 SPRING DITCH
For ditches that are identified with a section number, place the section number, in parens, at the end of the name.	ALLEN DITCH (SEC 27 EAST) RACHOU DITCHES (SEC 21) DITCH (SEC 16)
For ditches and canal that are identified as storage, use the standards for the name and then code storage, in parens, at the end of the name.	AGARS DITCH (STORAGE) ANDERSON DITCH NO. 3 (STORAGE)
For ditches that include information about which side of the creek the diversion is enclose the information in parens after the first word of the ditch name.	ABBOTT (NORTH) DITCH FLEMMING (EAST) DITCH ANTHONY (EAST SIDE) DITCH
For ditches that contain “also known as” information, enclose the AKA in parens after the first word of the ditch name.	APPEL (MUNSON) DITCH BERG (PRATT AND MAJORS) DITCH BIG (DITCH NO. 3) DITCH SMITH (MCCURRY DITCH NO. 2) DITCH NO. 15
Place further information about a ditch in parens after the first word of the ditch name.	BANCORD (LOWER) FLOOD DITCHES BANCORD (MIDDLE NO. 2) FLOOD DITCHES BANCORD (MIDDLE) FLOOD DITCHES
Some ditch names may not fit the standards or must be entered a certain way. If the above rules can't be followed, enter the ditch name as required.	DODSON NORTH CANAL SAINT MARY CANAL DRY CREEK CANAL (ST MARYS LAKE)

Extracted from the DNRC Memo “Oracle Changes” sent to Regional Offices, M & M, and Central Office Staff from the Database Team on September 5, 2006.

Appendix B

DITCH MEMORANDUM

AS WE EXAMINE CLAIMS AND CODE THEM IN THE DATABASE, WE NEED TO ENTER THE DITCH NAME AT THE POD TAB LEVEL. THE FOLLOWING STEPS OUTLINE THAT PROCEDURE.

1. SCROLL TO THE RIGHT IN THE POD TAB UNTIL YOU FIND THE AREA LABELED “DIVERSION/DITCH NAME”. THIS IS A NEW FEATURE IN THE DATABASE, NEW SINCE WE RECEIVED A MEMO IN SEPTEMBER 2006.
2. USE THE LOV (F9) TO SEARCH FOR YOUR DITCH NAME. THERE MAY BE SEVERAL ENTRIES WITH THE SAME DITCH NAME. ONLY CHOOSE THAT DITCH WHICH HAS LEGALS MATCHING YOUR DITCHES’ POD. IF NO SUCH DITCH APPEARS, YOU MUST ENTER THE DITCH IN THE DITCH TABLE.
3. TO ACCESS THE DITCH TABLE, GO TO THE CREATE AND MAINTAIN MENU AND SELECT—DIVERSION/DITCH NAME. THIS OPENS UP THE DITCH TABLE WHERE YOU CAN NOW ENTER THE NECESSARY DITCH NAME. UPON OPENING THE DITCH TABLE, IT IS READY TO ACCEPT A NAME. BEFORE YOU ENTER YOUR NEW DITCH NAME, DO A QUERY OF THE NAME IN QUESTION, BEING SURE TO USE THE WILDCARD (%). THIS WILL ACT AS A CHECK ON WHAT WAS ALREADY REVEALED IN THE LOV. IF YOUR DITCH WITH THE SPECIFIC LEGALS DOES NOT APPEAR IN THE QUERIED LIST, THEN ADD IT TO THE LIST AT THE BOTTOM, AND THEN SAVE. USE THE WORD “DITCH” IN YOUR DITCH NAME. In order to define this ditch as being unique, you must enter the legal description of the POD associated with this ditch. BE AS SPECIFIC AS POSSIBLE. FOR MORE DETAILS ON THE SYNTAX TO USE IN DITCH NAMING, PLEASE REFER TO THE SEPTEMBER 2006 MEMO FROM THE DATABASE TEAM.
4. SAVE YOUR ENTRY. NOW YOU CAN RETURN TO THE LOV AT THE “DIVERSION/DITCH NAME” AREA OF THE POD TAB AND SELECT THE DITCH WHICH YOU JUST ENTERED.

NOTE: AS YOU ARE LOOKING AT THE DITCH TABLE, YOU WILL NOTICE MANY DITCH NAMES IDENTICAL TO THE ONE YOU ARE USING BUT WITHOUT ANY LEGALS ASSOCIATED. DO NOT USE THESE DITCHES, BUT INSTEAD, ENTER YOUR OWN WITH THE CORRESPONDING LEGALS.

EXHIBIT XII-6

DEPARTMENT SUMMARY REPORT

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION PAGE 1A

PART A: ABSTRACT OF WATER RIGHT CLAIM
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41E-W-301224-00

THE FOLLOWING INFORMATION IS NOT THE DECREE OF THE MONTANA WATER COURT. IT IS AN INFORMATIONAL ABSTRACT PREPARED BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) AND PROVIDED TO THE WATER COURT FOR ITS USE IN PREPARING THE DECREE FOR THIS BASIN.

THE INFORMATION SHOWN ON THIS ABSTRACT MAY HAVE CHANGES FROM THE WATER RIGHT AS CLAIMED OR AMENDED. AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM CHANGED BY THE DNRC DURING THE EXAMINATION PROCESS. THESE CHANGES ARE AUTHORIZED BY THE WATER COURT OR THE WATER RIGHT CLAIM EXAMINATION RULES AS ADOPTED BY THE MONTANA SUPREME COURT.

* OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000

PURPOSE (USE): IRRIGATION
TYPE OF IRRIGATION SYSTEM: MULTIPLE METHODS

* SOURCE: LONG CREEK
SOURCE TYPE: SURFACE WATER

* PRIORITY DATE: JUNE 19, 1866
TYPE OF HISTORICAL RIGHT: FILED

FLOW RATE: NO FLOW RATE HAS BEEN DECREED FOR THIS USE FROM
THIS ONSTREAM RESERVOIR.

* VOLUME: 48.90 AF
CLIMATIC AREA: 4

MAXIMUM ACRES: 40.00

PERIOD OF USE: APRIL 15 TO OCTOBER 19

POINTS OF DIVERSION AND MEANS OF DIVERSION:

	LOT	BLK	QTR	SEC	SEC	TWP	RGE	COUNTY	MEANS
01				NWN	WNW	05	06N	07W JEFFERSON	DAM

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

01/01/92
PAGE 2A

PART A: ABSTRACT OF WATER RIGHT CLAIM
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41E-W-301224-00 (CONTINUED)

RESERVOIR:

QTR SEC SEC TWP RGE COUNTY
01 ONSTREAM NWNWNW 05 06N 07W JEFFERSON

RESERVOIR/LAKE NAME: LONG RESERVOIR

CAPACITY: 48.9 AC-FT DAM HEIGHT: 10 FT SURFACE AREA: 4.30 ACRES

PLACE OF USE FOR IRRIGATION:

	ACRES	LOT	BLK	QTR	SEC	TWP	RGE	COUNTY
001	10.00			SWSE	05	06N	07W	JEFFERSON
002	10.00			SWSE	03	06N	07W	JEFFERSON
003	<u>20.00</u>			SWSE	33	07N	07W	JEFFERSON
TOTAL	40.00							

REMARKS:

THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE SUPPLEMENTAL WHICH MEANS THE RIGHTS HAVE OVERLAPPING PLACES OF USE. THE RIGHTS CAN BE COMBINED TO IRRIGATE ONLY OVERLAPPING PARCELS OF THE CLAIMANT'S TOTAL 151.00 ACRES. EACH RIGHT IS LIMITED TO THE FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE.
W020384-00, W020385-00, W020386-00.

THE FOLLOWING ELEMENTS WERE AMENDED BY THE CLAIMANT ON 03/21/90: POINT OF DIVERSION, SOURCE, MEANS OF DIVERSION AND MAXIMUM ACRES.

THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE MULTIPLE USES OF THE SAME RIGHT. THE USE OF THIS RIGHT FOR SEVERAL PURPOSES DOES NOT INCREASE THE EXTENT OF THE WATER RIGHT. RATHER IT DECREES THE RIGHT TO ALTERNATE AND EXCHANGE THE USE (PURPOSE) OF THE WATER IN ACCORD WITH HISTORICAL PRACTICES. W034134-00, 034843-00, W088713-00.

NOTICE OF WATER RIGHT TRANSFER RECEIVED 04/12/86.

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

01/01/92
PAGE 3B

PART B: EXAMINATION REPORT BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER BASIN 41E

WATER RIGHT NUMBER 41E-W-301224-00

THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) PROVIDES THE FOLLOWING INFORMATION TO THE WATER COURT FOR ITS CONSIDERATION IN ADJUDICATING THIS CLAIMED WATER RIGHT.

REMARKS PRECEDED BY DOUBLE ASTERISKS (**) ARE EXPLANATORY OR CLARIFYING INFORMATION. REMARKS WITHOUT DOUBLE ASTERISKS ARE ISSUES OR DATA IDENTIFIED THROUGH THE DNRC EXAMINATION. ALL REMARKS WILL BE INCORPORATED INTO THE DECREE UNLESS DIRECTED OTHERWISE BY THE WATER COURT.

OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000

FACTS, DATA AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION

** TRANSFER PROCESSED TO ADD NEW OWNERS. THE WATER RIGHT WILL BE SPLIT INTO SEPARATE OWNERSHIPS AFTER FINAL DECREE.

RESERVOIR:

FACTS, DATA, AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION

** SEE THE RESERVOIR WORKSHEET IN THE CLAIM FILE FOR ADDITIONAL RESERVOIR DATA.

PLACE OF USE FOR IRRIGATION:

FACTS, DATA, AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION

THE JEFFERSON COUNTY WATER RESOURCES SURVEY (1968) SHOWS 15.00 ACRES BEING IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.

USDA AERIAL PHOTOGRAPH NO. 893-981, DATED 08/29/78, SHOWS 29.00 ACRES BEING IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.

OTHER:

FACTS, DATA, AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION

** SUBD: ALLOMONT ORCHARDS

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION PAGE 1
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41E-W-301224-00

PART A: ABSTRACT OF WATER RIGHT CLAIM

THE FOLLOWING INFORMATION IS NOT THE DECREE OF THE MONTANA WATER COURT. IT IS AN INFORMATIONAL ABSTRACT PREPARED BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) AND PROVIDED TO THE WATER COURT FOR ITS USE IN PREPARING THE DECREE FOR THIS BASIN.

THE INFORMATION SHOWN ON THIS ABSTRACT MAY HAVE CHANGES FROM THE WATER RIGHT AS CLAIMED OR AMENDED. AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM CHANGED BY THE DNRC DURING THE EXAMINATION PROCESS. THESE CHANGES ARE AUTHORIZED BY THE WATER COURT OR THE WATER RIGHT CLAIM EXAMINATION RULES AS ADOPTED BY THE MONTANA SUPREME COURT.

* OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000

PURPOSE (USE): IRRIGATION
TYPE OF IRRIGATION SYSTEM: MULTIPLE METHODS

* SOURCE: LONG CREEK
SOURCE TYPE: SURFACE WATER

THIS WATER RIGHT ALSO INCLUDES GROUNDWATER FROM THE SPRING
IN THE NWNWNW SEC 05 TWP 06N RGE 07W JEFFERSON COUNTY.

* PRIORITY DATE: JUNE 19, 1866
TYPE OF HISTORICAL RIGHT: FILED

FLOW RATE: NO FLOW RATE HAS BEEN DECREED FOR THIS USE FROM
THIS ONSTREAM RESERVOIR.

* VOLUME: 48.90 AF

CLIMATIC AREA: 4

MAXIMUM ACRES: 40.00

PERIOD OF USE: APRIL 15 TO OCTOBER 19

POINTS OF DIVERSION AND MEANS OF DIVERSION:

	LOT	BLK	QTR	SEC	SEC	TWP	RGE	COUNTY	MEANS
01				NWNWNW	05	06N	07W	JEFFERSON	DAM

RESERVOIR:

	QTR	SEC	SEC	TWP	RGE	COUNTY
01				ONSTREAM	NWNWNW	05 06N 07W JEFFERSON

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

PAGE 2

WATER RIGHT NUMBER 41E-W-301224-00 (CONTINUED)

RESERVOIR CONTINUED:

RESERVOIR/LAKE NAME: LONG RESERVOIR
CAPACITY: 48.9 AC-FT DAM HEIGHT: 10 FT SURFACE AREA: 4.30 ACRES

THE CAPACITY, DAM HEIGHT, AND SURFACE AREA HAVE BEEN
ESTIMATED BY DNRC.

PLACE OF USE FOR IRRIGATION:

	ACRES	LOT	BLK	QTR	SEC	TWP	RGE	COUNTY
001	10.00			SWSE	05	06N	07W	JEFFERSON
002	10.00			SWSE	03	06N	07W	JEFFERSON
003	<u>20.00</u>			SWSE	33	07N	07W	JEFFERSON
TOTAL	40.00							

REMARKS:

SUBD: ALLOMONT ORCHARDS

THE WATER RIGHTS FOLLOWING THIS STATEMENT ARE SUPPLEMENTAL WHICH MEANS
THE RIGHTS HAVE OVERLAPPING PLACES OF USE. THE RIGHTS CAN BE COMBINED TO
IRRIGATE ONLY OVERLAPPING PARCELS OF THE CLAIMANT'S TOTAL 151.00 ACRES.
EACH RIGHT IS LIMITED TO THE FLOW RATE AND PLACE OF USE OF THAT INDIVIDUAL
RIGHT. THE SUM TOTAL VOLUME OF THESE WATER RIGHTS SHALL NOT EXCEED THE
AMOUNT PUT TO HISTORICAL AND BENEFICIAL USE.
W020384-00, W020385-00, W020386-00.

NOTICE OF WATER RIGHT TRANSFER RECEIVED 04/12/86.

* PART B: EXAMINATION REPORT *

* THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) PROVIDES THE *

* FOLLOWING INFORMATION TO THE MONTANA WATER COURT FOR ITS CONSIDERATION IN *

* ADJUDICATING THIS CLAIMED WATER RIGHT. LISTED BELOW ARE ISSUE OR DATA *

REMARKS *

* IDENTIFIED THROUGH THE DNRC EXAMINATION. THESE REMARKS WILL BE *

INCORPORATED *

* INTO THE DECREE UNLESS DIRECTED OTHERWISE BY THE WATER COURT. *

* *

* OWNERS: *

* *

* FACTS, DATA AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION *

* *

* THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT WERE *

* FILED BY DIFFERENT PARTIES WHO CLAIM OVERLAPPING PLACES *

* OF USE. W128946-00, W123096-00. *

EXHIBIT XII-6 (cont.)

**SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E**

PAGE 3

WATER RIGHT NUMBER 41E-W-301224-00 (CONTINUED)

REMARKS CONTINUED:

* **PLACE OF USE FOR IRRIGATION:**

*

* **FACTS, DATA, AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION**

*

* **THE JEFFERSON COUNTY WATER RESOURCES SURVEY (1968)**

* **SHOWS 15.00 ACRES BEING IRRIGATED. A DESCRIPTION OF**

* **THESE ACRES IS IN THE CLAIM FILE.**

*

* **USDA AERIAL PHOTOGRAPH NO. 893-981, DATED 08/29/78,**

* **SHOWS 29.00 ACRES BEING IRRIGATED. A DESCRIPTION OF**

* **THESE ACRES IS IN THE CLAIM FILE.**

*

* **OTHER:**

*

* **FACTS, DATA, AND ISSUES IDENTIFIED BY THE DNRC EXAMINATION**

*

* **FEE INSUFFICIENT TO COVER CLAIM. TOTAL AMOUNT**

* **DUE \$40.00.**

*

* **THE MAXIMUM COMBINED ACRES FOR THIS GROUP OF**

* **SUPPLEMENTAL CLAIMS MAY REQUIRE MODIFICATION**

* **PENDING RESOLUTION OF MAXIMUM IRRIGATED ACRES**

* **ISSUE.**

*

*

EXHIBIT XII-6 (cont.)

**SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION PAGE 1
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E**

WATER RIGHT NUMBER 41E-O-301224-00

PART A: ABSTRACT OF WATER RIGHT CLAIM

****** THIS WATER RIGHT CLAIM HAS BEEN TERMINATED ******

THE FOLLOWING INFORMATION IS NOT THE DECREE OF THE MONTANA WATER COURT. IT IS AN INFORMATIONAL ABSTRACT PREPARED BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) AND PROVIDED TO THE WATER COURT FOR ITS USE IN PREPARING THE DECREE FOR THIS BASIN.

**OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000**

PURPOSE (USE): IRRIGATION

SOURCE: LONG CREEK

PRIORITY DATE:

FLOW RATE:

VOLUME:

MAXIMUM ACRES:

PERIOD OF USE:

POINTS OF DIVERSION AND MEANS OF DIVERSION:

	<u>LOT</u>	<u>BLK</u>	<u>QTR</u>	<u>SEC</u>	<u>SEC</u>	<u>TWP</u>	<u>RGE</u>	<u>COUNTY</u>	<u>MEANS</u>
01				NWN	WNW	05	06N	07W JEFFERSON	DAM

RESERVOIR:

PLACE OF USE FOR IRRIGATION:

REMARKS:

THIS CLAIMED WATER RIGHT HAS BEEN WITHDRAWN AS IT WAS DUPLICATED BY CLAIM NO. W182986-00.

THIS CLAIM WAS WITHDRAWN FROM THE ADJUDICATION PROCESS AT THE REQUEST OF THE CLAIMANT ON 01/12/90.

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION **PAGE 2**
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41E-O-301224-00 (CONTINUED)

REMARKS CONTINUED:

* **PART B: EXAMINATION REPORT** *

*

* **THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) PROVIDES THE** *

* **FOLLOWING INFORMATION TO THE MONTANA WATER COURT FOR ITS CONSIDERATION IN** *

* **ADJUDICATING THIS CLAIMED WATER RIGHT. LISTED BELOW ARE ISSUE OR DATA** *

REMARKS *

* **IDENTIFIED THROUGH THE DNRC EXAMINATION. THESE REMARKS WILL BE** *

INCORPORATED *

* **INTO THE DECREE UNLESS DIRECTED OTHERWISE BY THE WATER COURT.** *

*

* **THE DNRC EXAMINATION OF THIS CLAIM FOUND NO SIGNIFICANT FACTS, DATA, OR ISSUES** *

* **TO REPORT TO THE WATER COURT. EXAMINATION OF THIS CLAIM BY THE DNRC MAY NOT** *

* **HAVE BEEN COMPLETED AS THE CLAIMANT WITHDREW THE CLAIM.** *

*

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION PAGE 1
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41G-W-301224-00

PART A: ABSTRACT OF WATER RIGHT CLAIM

**** THIS IS AN INTERBASIN TRANSFER CLAIM ****

THE POINT OF DIVERSION FOR THIS WATER RIGHT IS LOCATED IN ANOTHER BASIN. THE ABBREVIATED INFORMATION PROVIDED HERE IS TO DESCRIBE THE PLACE OF USE IN THIS BASIN. COMPLETE INFORMATION DESCRIBING THE ENTIRE RIGHT CAN BE FOUND IN THE POINT OF DIVERSION DECREE.

THIS APPROPRIATION OF WATER TAKES WATER FROM THE JEFFERSON RIVER DRAINAGE (BASIN 41G) AND USES IT IN THE BOULDER RIVER DRAINAGE (BASIN 41E). ANY OBJECTION TO THIS RIGHT MAY BE FILED DURING THE OBJECTION PERIODS FOR EITHER THE POINT OF DIVERSION OR PLACE OF USE BASIN.

THE FOLLOWING INFORMATION IS NOT THE DECREE OF THE MONTANA WATER COURT. IT IS AN INFORMATIONAL ABSTRACT PREPARED BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) AND PROVIDED TO THE WATER COURT FOR ITS USE IN PREPARING THE DECREE FOR THIS BASIN.

THE INFORMATION SHOWN ON THIS ABSTRACT MAY HAVE CHANGES FROM THE WATER RIGHT AS CLAIMED OR AMENDED. AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM CHANGED BY THE DNRC DURING THE EXAMINATION PROCESS. THESE CHANGES ARE AUTHORIZED BY THE WATER COURT OR THE WATER RIGHT CLAIM EXAMINATION RULES AS ADOPTED BY THE MONTANA SUPREME COURT.

* OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000

* PURPOSE (USE): IRRIGATION

SOURCE: LONG CREEK
SOURCE TYPE: SURFACE WATER

* PRIORITY DATE: DECEMBER 31, 1942

FLOW RATE:

VOLUME:

MAXIMUM ACRES:

PERIOD OF USE:

POINTS OF DIVERSION AND MEANS OF DIVERSION:

RESERVOIR:

EXHIBIT XII-6 (cont.)

SUMMARY REPORT TO THE WATER COURT 01/01/92
BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION PAGE 2
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E

WATER RIGHT NUMBER 41G-W-301224-00 (CONTINUED)

PLACE OF USE FOR IRRIGATION:

	ACRES	LOT	BLK	QTR	SEC	TWP	RGE	COUNTY
001	10.00			SWSE	05	06N	07W	JEFFERSON
002	10.00			SWSE	03	06N	07W	JEFFERSON
003	<u>20.00</u>			SWSE	33	07N	07W	JEFFERSON
TOTAL	40.00							

* PART B: EXAMINATION REPORT *

* THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) PROVIDES THE *

* FOLLOWING INFORMATION TO THE MONTANA WATER COURT FOR ITS CONSIDERATION IN *

* ADJUDICATING THIS CLAIMED WATER RIGHT. LISTED BELOW ARE ISSUE OR DATA *

REMARKS *

* IDENTIFIED THROUGH THE DNRC EXAMINATION. THESE REMARKS WILL BE INCORPORATED *

* INTO THE DECREE UNLESS DIRECTED OTHERWISE BY THE WATER COURT. *

* THE JEFFERSON COUNTY WATER RESOURCES SURVEY (1968) *

* SHOWS 15.00 ACRES BEING IRRIGATED. A DESCRIPTION OF *

* THESE ACRES IS IN THE CLAIM FILE. *

* USDA AERIAL PHOTOGRAPH NO. 893-981, DATED 08/29/78, *

* SHOWS 29.00 ACRES BEING IRRIGATED. A DESCRIPTION OF *

* THESE ACRES IS IN THE CLAIM FILE. *

EXHIBIT XII-7

WATER COURT SUMMARY REVIEW PROCESS

I. Water masters review summary reports:

A. To help assure accuracy of the indexes and abstracts which will be published as part of a temporary preliminary or preliminary decree.

B. Accuracy and completeness are essential.

1. Our Montana customers' property rights are involved.
2. Jealous eyes from downstream states will check our work.
3. A little time spent now to assure accuracy saves much time later for our customers, the water court and the DNRC.

II. To review a summary report, we look for anything that looks incorrect or inconsistent with the rules and for printing anomalies.

A. The law says that the water court "determines the necessity and scope of any preliminary department examination . . . but in no way influences the results of the directed examination."

B. We ask questions when we see something that may need attention. We try not to influence DNRC's answers.

C. If a serious legal question comes up, such as the question about marshaling in the Blackfoot, Basin 76F, we will advise the Chief Water Judge of the problem. CWJ may choose to work with the Department to iron out a uniform way to apply the law to claims examination.

D. Rule 3, W.R.Adj.R., gives CWJ the authority to modify the decree. Water masters may give written direction, with a copy to the claimants. In practice, we will not do so without consulting the CWJ, and then only when the problem is serious.

E. We would rather not find errors of punctuation, spelling, and other typos. Some of us may mark those because we were English majors and have not completed the recovery program. It is a better use of water master time for us to check for the things listed below which affect the elements and legal or factual issues about the claims.

III. We read everything DNRC sends us.

A. We review each index.

EXHIBIT XII-7 (cont.)

1. Are names and initials consistent in the Owner Index?
2. Do all claims have a source? Data entry errors in Source Index?
3. In Priority Date Index, do all active claims have a PD? Are dates post 7/1/73? Are dates unusually early, such as 1860? IR for claims without PD?
4. Point of Diversion Index. Legal descriptions complete? IR if needed?
5. Other elements in the above: purpose code, flow rate if needed.
6. Issue Remark Index. Data entry errors, combinations (if maximum acres/place of use, should there be flow rate IR?), remarks that should not be there.

B. We review each abstract.

1. Format and data entry problems.
2. Clarification and general remarks.
3. Are IRs applicable?
4. Elements consistent with purpose?

IV. We ask questions of the claims examiners. If we think we see a data entry problem or a missing IR or whatever, we will either send an e-mail or a spreadsheet with our questions. Review is a public court proceeding. We need to keep a record of what we asked and what you answered. The Water Master will print the correspondence and give it to the Chief Water Judge.

V. We appreciate having a written dialog about what we have asked. If we ask "Is the date 1492 a data entry error?" and the answer is Yes and the examiner makes the correction, that's all we need. If the answer is No, having an explanation may keep us from asking again.

VI. DNRC returns the corrected abstracts. We review those and do any follow-up.

VII. Claims examiners may make changes after the summary report comes out. When they do, DNRC sends a copy of the revised abstract to the water master for review.

VIII. The water master writes a memorandum to the Chief Water Judge to say that the decree is ready to issue. CWJ makes findings of fact and conclusions of law and issues the decree. The decree includes the findings of fact, conclusions of law, order, indexes, abstracts, and a map of the basin.

EXHIBIT XII-7 (cont.)

Burden of Proof "A party's duty to prove a disputed assertion or charge." Black's Law Dictionary, Eighth Edition (2004).

Section 85-2-227 (1), MCA states:

For purposes of adjudicating rights pursuant to this part, a claim of existing right filed in accordance with 85-2-221 [filed on the Statement of Claim form by July 1, 1996 final date] or an amended claim of existing right constitutes ***prima facie proof of its content*** until the issuance of a final decree. For purposes of administering water rights, the provisions of a temporary preliminary decree or preliminary decree, as modified after objections and hearings, supersede a claim of existing right until a final decree is issued.

Text I frequently use if I need to explain prima facie and the burden of proof:

In the context of this adjudication, ***prima facie proof*** means that a Statement of Claim, properly filed, including the historical basis for the claimed right, the flow rate, priority date, purpose, place of use, period of use, means of diversion and point of diversion, ***presents all the necessary elements to prove a valid water right***. The evidence presented on the Statement of Claim is prima facie proof of a valid water right. ***Prima facie proof does not mean that the claim is given a stamp of some higher order of truthfulness, but rather, that all the necessary components have been specified, that the claim is complete, that the prima facie case has been made.*** If an objection to the claim is filed, that objector then has the burden of going forward to present additional evidence disproving this prima facie proof that the claimed water right is valid.

Prima facie evidence is defined by statute as "that which proves a particular fact until contradicted and overcome by other evidence." Section 26-1-102(6), MCA. ***Therefore, a properly filed Statement of Claim is prima facie proof of its content until contradicted and overcome by other evidence.***

Rule 19, W.R.Adj.R. text is stated in full as the standard Conclusion of Law used in all Master's Reports or Judge decisions determining objections whether settled or heard:

A properly filed Statement of Claim for Existing Water Right is prima facie proof of its content pursuant to section 85-2-227, MCA. This prima facie proof may be contradicted and overcome by other evidence that proves, by a preponderance of the evidence, that the elements of the claim do not accurately reflect the beneficial use of the water right as it existed prior to July 1, 1973. This is the burden of proof for every assertion that a claim is incorrect including for claimants objecting to their own claims. Rule 19, W.R.Adj.R.

EXHIBIT XIII-a

Notice of Objection

IN THE WATER COURT OF THE STATE OF MONTANA
YELLOWSTONE DIVISION
TONGUE RIVER, BELOW HANGING WOMAN CREEK (BASIN 42C)

NOTICE THAT OBJECTIONS HAVE BEEN FILED AND HEARINGS REQUESTED

This is your personal notice that the Montana Water Court will hear objections, receive evidence, and review the historical beneficial use of 1182 water right claims diverted or used in the Tongue River drainage below Hanging Woman Creek. All but two of these claims were included in the Basin 42C Preliminary Decree issued in 2008.

WHAT IS HAPPENING?

An **Objection List** has been prepared that identifies the claim number, the ownership, the water source involved, the names of any objectors, and the general nature of the issues which the Water Court will review. Any of the claims on the list may change as a result of this review. Changes to a neighbor's water right may affect your water rights. After the Water Court completes its review of these claims, a water commissioner could be appointed to enforce the provisions of these claims on any of the sources involved. The purpose of this proceeding is to determine the historical beneficial use of the claims involved in this drainage. If you want to be kept informed of the progress of a water right claim through the Water Court, or to become involved as a third party in the claim proceedings, you need to file a **Notice of Intent to Appear** for the specific water right claim number.

FOR YOUR PROTECTION, WE SUGGEST THAT YOU THOROUGHLY REVIEW THE OBJECTION LIST AND THEN DECIDE WHETHER YOU WANT TO FILE A NOTICE OF INTENT TO APPEAR. YOU CAN SEE THE OBJECTION LIST FOR THIS BASIN AND OBTAIN THE PROPER FORMS AT THE LOCATIONS LISTED BELOW.

WHO MUST FILE A NOTICE OF INTENT TO APPEAR?

If you are not already involved in a specific water right claim as the claimant or objector, but you wish to intervene and to participate in the proceeding regarding a specific water right claim, you must file a **Notice of Intent to Appear**. Those who timely file a **Notice of Intent to Appear** on a claim will receive notice of all further proceedings relevant to the Court's review of that specific claim.

FILING DEADLINE

A **Notice of Intent to Appear** must be filed on the form provided by the Water Court and must be returned to the Water Court, P. O. Box 1389, Bozeman, MT 59771-1389 by **August 25, 2009**.

WHERE TO SEE THE OBJECTION LIST AND OBTAIN FORMS

The Objection List may be reviewed and Notice of Intent to Appear forms may be obtained at the:

1. Montana Dept. of Natural Resources & Conservation,
Water Rights Adjudication, 910 Helena Ave, Helena, Montana. (406) 444-0560.
Water Resources Regional Office, 1371 Rimtop Drive, Billings, Montana. (406) 247-4415.
2. Clerk of District Courts,
Big Horn County Courthouse, Hardin, Montana.
Custer County Courthouse, Miles City, Montana.
Powder River County Courthouse, Broadus, Montana.
Rosebud County Courthouse, Forsyth, Montana.
3. Montana Water Court, 601 Haggerty Lane, Bozeman, Montana. (406) 586-4364.

The Objection List and Notice of Intent to Appear form are also posted on the Internet at http://dnrc.mt.gov/wrd/water_rts/adjudication/42C_tongue/default.asp After arriving at the site, click on Notice of Intent to Appear Form or on Objection List. A free CD of the Objection List and Notice of Intent to Appear forms are also available from the Water Court upon request. A paper copy of the Objection List is available from the Water Court for \$35.00.

EXHIBIT XIII-a (cont.)

The **Objection List** does not contain all of the information included on the objection form. To obtain a copy of an objection in its entirety, contact the Montana Water Court, P. O. Box 1389, Bozeman, MT 59771-1389, (406) 586-4364 or toll free (in Montana only) 1-800-624-3270.

***ALL NOTICES OF INTENT TO APPEAR MUST BE RECEIVED BY THE MONTANA WATER COURT
BEFORE 5:00 PM ON AUGUST 25, 2009.***

WHAT HAPPENS AFTER A NOTICE OF INTENT TO APPEAR IS FILED?

The claimant, objectors and those who filed a Notice of Intent to Appear form will be notified by the Court of the time and date set for the First Status Conference and all other Court proceedings. If you file a Notice of Intent to Appear, you will be expected to participate actively in the Court proceedings.

If you do not participate in Water Court proceedings, your right to appeal adverse Water Court decisions is limited by the provisions of Section 85-2-235, MCA.

TWO CLAIMS WERE NOT INCLUDED IN THE DECREE

Two claims were not included in the Basin 42C Decree due to clerical errors. These claims have been added to the Decree and the Objection List, and they will be reviewed by the Water Court. A free copy of the claim abstracts will be mailed to you upon request or can be viewed on the DNRC web site listed earlier. The missing claims are: a Big Sky Coal Co. stock claim (42C 27352-00) for Unnamed Tributary of Lay Creek water with a priority date of December 31, 1936; and a Big Sky Coal Co. stock claim (42C 27353-00) for Unnamed Tributary of Lay Creek water with a priority date of December 31, 1936. If you wish to participate in the review of these claims, you must file a Notice of Intent to Appear form and identify the claim number of the claim on which you will participate.

TELEPHONE CONFERENCES WITH THE WATER COURT

The Water Court will host two **telephone conference calls on July 15th, and July 21st, 2009 at 7:00 P.M.** On either day at 7:00 PM, dial the toll free telephone number: **1-866-479-6576**. At the prompt, enter the participant pin code of: **46309676#**.

ARE WE USING YOUR CORRECT MAILING ADDRESS?

If the mailing label on the envelope in which this Notice was enclosed is incorrect, please mail the enclosed address correction form to the DNRC.

Any Questions? Call the DNRC Adjudication office at (406) 444-0560 or call the Water Court's toll free number 1-800-624-3270 (In Montana). Our regular office number is (406) 586-4364; it is not toll free.

DATED this 26th day of June, 2009.

C. BRUCE LOBLE
Chief Water Judge
Montana Water Court
P. O. Box 1389
Bozeman, MT 59771-1389

REMINDER: Notice of Intent to Appear must be filed by August 25, 2009.

EXHIBIT XIII-1

TEMPORARY PRELIMINARY DECREE
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E
ABSTRACT OF WATER RIGHT CLAIM

PAGE 1

WATER RIGHT NUMBER 41E-W-301224-00

IMPORTANT NOTICE

YOUR WATER RIGHT AS SHOWN ON THIS ABSTRACT MAY HAVE CHANGES FROM YOUR WATER RIGHT AS CLAIMED OR AMENDED. AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM CHANGED BY THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC) DURING THE EXAMINATION PROCESS. THESE CHANGES ARE AUTHORIZED BY THE MONTANA WATER COURT OR THE WATER RIGHT CLAIM EXAMINATION RULES AS ADOPTED BY THE MONTANA SUPREME COURT.

OBJECTIONS MAY BE FILED ACCORDING TO THE PROCEDURES OUTLINED IN YOUR NOTICE OF ENTRY OF TEMPORARY PRELIMINARY DECREE AND NOTICE OF AVAILABILITY. UNLESS OBJECTED TO OR CALLED IN ON MOTION OF THE MONTANA WATER COURT IN THIS DECREE OR IN THE PRELIMINARY DECREE, THE ELEMENTS OF THIS CLAIMED WATER RIGHT WILL APPEAR IN THE FINAL DECREE AS SHOWN ON THIS ABSTRACT. (SEE SECTION 85-2-233, MONTANA CODE ANNOTATED.)

* OWNERS: SCHMANSKY RANCH CO
PO BOX 9999
FLOODPLAIN MT 59000

TRANSFER PROCESSED TO ADD NEW OWNERS. THE WATER
RIGHT WILL BE SPLIT INTO SEPARATE OWNERSHIPS AFTER
FINAL DECREE.

PURPOSE (USE): IRRIGATION
TYPE OF IRRIGATION SYSTEM: MULTIPLE METHODS

* SOURCE: LONG CREEK
SOURCE TYPE: SURFACE WATER

* PRIORITY DATE: JUNE 19, 1866
TYPE OF HISTORICAL RIGHT: FILED

FLOW RATE: NO FLOW RATE HAS BEEN DECREED FOR THIS USE FROM
THIS ONSTREAM RESERVOIR.

* VOLUME: 48.90 AF
CLIMATIC AREA: 4

MAXIMUM ACRES: 40.00

PERIOD OF USE: APRIL 15 TO OCTOBER 19

EXHIBIT XIII-1 (cont.)

TEMPORARY PRELIMINARY DECREE
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E
ABSTRACT OF WATER RIGHT CLAIM

PAGE 2

WATER RIGHT NUMBER 41E-W-301224-00 (CONTINUED)

POINTS OF DIVERSION AND MEANS OF DIVERSION:

	<u>LOT</u>	<u>BLK</u>	<u>QTR</u>	<u>SEC</u>	<u>SEC</u>	<u>TWP</u>	<u>RGE</u>	<u>COUNTY</u>	<u>MEANS</u>	
01				NWN	NWN	05	06N	07W	JEFFERSON	DAM

RESERVOIR:

	<u>QTR</u>	<u>SEC</u>	<u>SEC</u>	<u>TWP</u>	<u>RGE</u>	<u>COUNTY</u>	
01	ONSTREAM	NWN	NWN	05	06N	07W	JEFFERSON

RESERVOIR/LAKE NAME: LONG RESERVOIR

CAPACITY: 48.9 AC-FT DAM HEIGHT: 10 FT SURFACE AREA: 4.30 ACRES

PLACE OF USE FOR IRRIGATION:

	<u>ACRES</u>	<u>LOT</u>	<u>BLK</u>	<u>QTR</u>	<u>SEC</u>	<u>SEC</u>	<u>TWP</u>	<u>RGE</u>	<u>COUNTY</u>
001	10.00			SWSE	05	06N	07W	JEFFERSON	
002	10.00			SWSE	03	06N	07W	JEFFERSON	
003	20.00			SWSE	33	07N	07W	JEFFERSON	
TOTAL	40.00								

REMARKS:

SUBD: ALLOMONT ORCHARDS

THE FOLLOWING ELEMENTS WERE AMENDED BY THE CLAIMANT ON
03/21/90: POINT OF DIVERSION, SOURCE, MEANS OF
DIVERSION AND MAXIMUM ACRES.

NOTICE OF WATER RIGHT TRANSFER RECEIVED 04/12/86.

THE FOLLOWING ISSUES WERE IDENTIFIED BY THE DNRC DURING ITS
EXAMINATION OF THIS WATER RIGHT CLAIM. THESE ISSUES MAY
REMAIN UNRESOLVED IF NO OBJECTIONS ARE FILED.

THE JEFFERSON COUNTY WATER RESOURCES SURVEY
(1968)
SHOWS 15.00 ACRES BEING IRRIGATED. A DESCRIPTION
OF
THESE ACRES IS IN THE CLAIM FILE.

USDA AERIAL PHOTOGRAPH NO. 893-981 DATED 08/29/78,
SHOWS 29.00 ACRES BEING IRRIGATED. A DESCRIPTION
OF
THESE ACRES IS IN THE CLAIM FILE.

TEMPORARY PRELIMINARY DECREE
BOULDER RIVER TRIBUTARY OF JEFFERSON RIVER
BASIN 41E
ABSTRACT OF WATER RIGHT CLAIM

WATER RIGHT NUMBER 41E-W-301224-00 (CONTINUED)

A BETTER UNDERSTANDING OF YOUR CLAIMED WATER RIGHT CAN BE OBTAINED BY COMPARING YOUR RIGHT WITH OTHER CLAIMS IN THE BASIN. FOR EXAMPLE, COMPARE PRIORITY DATES, FLOW RATES, VOLUMES, OR ACRES IRRIGATED. ALSO, YOUR WATER RIGHT MAY BE SUBJECT TO WATER RIGHTS IN ADJOINING BASINS OR SUBBASINS AS WELL AS BEING SUBJECT TO OTHER RIGHT ON YOUR SOURCE OF SUPPLY. FINALLY, YOUR WATER RIGHT MAY BE SUBJECT TO INDIAN RESERVED AND FEDERAL RESERVED WATER RIGHTS.

COMPLETE DETAILS REGARDING THE DNRC EXAMINATION AND RELATED MATERIALS CAN BE REVIEWED AT THE OFFICE LOCATIONS IDENTIFIED IN YOUR NOTICE OF ENTRY OF TEMPORARY PRELIMINARY DECREE AND NOTICE OF AVAILABILITY.

SEE GENERAL FINDINGS OF FACT AND CONCLUSIONS OF LAW FOR FURTHER EXPLANATION OF YOUR CLAIMED WATER RIGHT. THESE FINDINGS CAN BE FOUND AS INDICATED IN YOUR NOTICE OF ENTRY OF TEMPORARY PRELIMINARY DECREE AND NOTICE OF AVAILABILITY. IF YOU NEED OBJECTION FORMS, OR HAVE QUESTIONS ABOUT WATER COURT PROCEDURES OR CHANGES TO YOUR RIGHT, YOU CAN CONTACT THE WATER COURT BY CALLING 1-800-624-3270 (WITHIN MONTANA ONLY) OR 1-406-4364, OR BY WRITING TO P.O. BOX 879, BOZEMAN MT 59771-0879.

EXHIBIT XIII-2

NOTICE OF AVAILABILITY

APRIL 6, 2007

Decree Report, Owner's Copy - Page 1

IN THE WATER COURT OF THE STATE OF MONTANA UPPER MISSOURI DIVISION BIG HOLE RIVER BASIN (41D)

NOTICE OF ENTRY OF TEMPORARY PRELIMINARY DECREE AND NOTICE OF AVAILABILITY

AS A WATER USER YOU NEED TO READ THIS ENTIRE NOTICE.

You are hereby notified that the Montana Water Court has entered its Temporary Preliminary Decree for the Big Hole River Basin 41D. The entire water rights Decree is now available for your review.

If you, or your predecessors, filed a claim for an existing water right with a priority date before July 1, 1973, an abstract of your claim is enclosed with this Notice. The abstract reflects your existing water right claim as it appears in this Decree. If you, or your predecessors, only applied for or received a permit or certificate from the Department of Natural Resources and Conservation to appropriate water with a priority date after June 30, 1973 (for example: a well drilled in 1975 for domestic or stock purposes), you will not receive an abstract of water right with this Notice.

WHAT IS A TEMPORARY PRELIMINARY DECREE?

This Temporary Preliminary Decree is a compilation of 3892 existing water right claims filed in the Big Hole River drainage in Basin 41D. This Decree includes all sources of water located within the Big Hole River drainage, including, but not limited to Big Hole River, Big Lake Creek, Divide Creek, Wise River and all tributaries. See the general Findings and Facts and Conclusions of Law in the Index volume of the Decree for further explanation of the preparation of this Decree.

SHOULD YOU FILE AN OBJECTION?

Only you can answer this question. You should first examine the abstract of your water rights. Is each abstract correct? If you don't agree with your pre-July 1973 water right claim as it is printed on the enclosed abstract, you may file an objection. Your examination must not stop there, though. You must understand three important facts: (1) your water right may be subject to other water rights on your source or on other sources in the Basin; (2) your water right may be subject to water rights in adjoining Basins; and (3) your water right may be subject to Indian and Federal reserved water rights. If you believe other water right claims in this Decree do not reflect their historical beneficial use, you may file an objection and the Water Court will hear your objection.

You can determine the rank of the priority date of your water right in comparison with other water rights in your Basin by using the Index available with the Decree. The Source Name Index lists all water rights under the name of each source of supply (for example, all water rights listed on Wise River). Under each source name, the water rights are listed from the earliest priority date to the latest priority date. The Priority Date Index lists all water rights within the Basin beginning with the earliest date and continuing to the latest. You can buy a copy of the Decree or just the Index, or you can look at a copy at any of the offices listed below on this Notice or on the Internet. You should review ALL the elements of other water right claims which may affect you.

EXHIBIT XIII-2 (cont.)

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Decree Report, Owner's Copy - Page 2

REVIEW ALL WATER RIGHT ABSTRACTS CAREFULLY

Look carefully at all the water right abstracts in the Decree, including your own abstract. Elements of your water right may have been changed since the claim was originally filed. If there is a change, that change has occurred as a result of information obtained during the examination of your claim by the Montana Department of Natural Resources and Conservation. If an abstract reflects any change, that change may be challenged by filing an objection with the Water Court. Your claim may also be called in and reviewed by the Water Court on its own initiative in accordance with the examination information.

This Decree, as modified after objections and hearings, will be enforceable in accordance with §3-7-212 and §85-2-406 Montana Code Annotated. If a right receives no objection or is not reviewed by the Water Court on its own initiative, it may remain unchanged, will be enforceable and may be entered in the Final Decree.

HOW TO FILE AN OBJECTION AND REQUEST A HEARING

An objection must be filed on the forms provided by the Montana Water Court. Water Court forms can be found at the offices or Internet address listed below.

ALL OBJECTIONS MUST BE FILED AND RECEIVED AT THE WATER COURT ON OR BEFORE OCTOBER 3, 2007. OBJECTIONS RECEIVED AFTER THIS DATE WILL BE CLASSIFIED AS LATE. Objections may be mailed to the Montana Water Court, PO Box 1389, Bozeman, MT 59771-1389, but they still must be received by OCTOBER 3, 2007.

CAN YOU GET AN EXTENSION?

An extension for filing objections may be granted by the Water Judge. Requests must be received by the Montana Water Court on or before OCTOBER 3, 2007. Use the form furnished by the Montana Water Court. If an extension is granted, it will apply to everyone. Any extension may be seen at the offices listed below and will be advertised once in the *Dillon Tribune and the Montana Standard*.

NOTICE OF AVAILABILITY

THE DECREE (INCLUDING THE FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECREE INDEX,) IS AVAILABLE FOR REVIEW, AND WATER COURT OBJECTION AND EXTENSION FORMS CAN BE OBTAINED AT THE FOLLOWING OFFICES:

1. Montana Water Court, **601 Haggerty Lane, Bozeman, Montana.**
2. Montana Dept. of Natural Resources, **1424 Ninth Ave, Helena, Montana.**
3. Montana Dept. of Natural Resources & Conservation, Water Resources Regional Office, **1424 9th Avenue, Helena, Montana.**
4. Clerk of District Court, **Beaverhead County Courthouse, Dillon, Montana.**

You may obtain a copy of the TEMPORARY PRELIMINARY DECREE from the Department of Natural Resources and Conservation, Water Rights Bureau, P.O. Box 201601, Helena, MT, 59620-1601. The cost of this Decree, including the Index, Findings and Conclusions is \$407.00. The Index by itself is \$61.00. Electronic copies of this Decree, including the Index on CD are \$10.00.

Internet access to Basin 41D water right Decree information is available. Point your browser to the World Wide Web address of www.dnrc.mt.gov/wrd/default.asp. Place mouse pointer over Bureaus and click on Water Rights. Under Adjudication Information, click on Water Court Activity. Then scroll down through the various basins to Basin #41D and click on BIG HOLE RIVER. Then scroll down and click on the 41D Decree information that interests you.

EXHIBIT XIII-2 (cont.)

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AFTER OBJECTIONS ARE FILED

After the time for filing objections has passed, the Montana Water Court will prepare an Objection List, notify you by mail that hearings have been requested, and set a date for all interested parties to notify the Montana Water Court of their intent to participate in any of those hearings.

Basin Meeting with the Chief Water Judge

An informal public meeting will be held by Bruce Loble, Chief Water Judge,
at the Divide Grange Hall, Divide, MT.

1) Wednesday evening, JUNE 6, 2007 at 6:30pm.

An informal public meeting will be held by Bruce Loble, Chief Water Judge,
at the Wisdom Community Center, Wisdom, MT.

1) Wednesday evening, JUNE 20, 2007 at 6:30pm.

Is Your Mailing Address Correct?

If the address label on the envelope in which this Notice was enclosed is incorrect, please notify the Department of Natural Resources & Conservation by returning the enclosed Address Correction Form.

Any Questions? Call the DNRC Helena office at 406-444-6999 or call the Water Court's toll free number at 800-624-3270 (In Montana). Our regular office number is 406-586-4364 and it is not toll free.

DATED this 6th day of April 2007.

/s/ C. Bruce Loble

Chief Water Judge
Montana Water Court
P. O. Box 1389
Bozeman, MT 59771-1389

Remember: Objections must be filed in the Water Court by OCTOBER 3, 2007.

EXHIBIT XIII-3

DECREE INDEX EXAMPLES

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D INDEX OF CLAIMS BY SOURCE NAME, BY ENFORCEABLE PRIORITY DATE

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;
POD Indicator: &=Only First POD Listed

WATER RIGHT ID	WATER RIGHT TYPE	VERSION STATUS	LATE CLAIM	HISTORICAL TYPE	USE	FLOW RATE	ENFORCEABLE PRIORITY DAT	POINT OF DIVERSION					TRIB	SOURCE NAME	OWNER NAME
								QTR	SEC	SEC	TWP	RGE	CN		
41D	93827	CLAIM	ACTV	DECREE	IR	2.50 CFS	05/01/1890	SESENE	19	1S	11W	BE		ADSON CREEK	CONNOLLY, J W CONNOLLY, SHIRLEY B USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	53770	CLAIM	ACTV	USE	ST		11/05/1906	S2	20	1S	11W	BE &		ADSON CREEK	
41D	53918	CLAIM	WDRN		CM									AGNES LAKE SPRING	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41B	10700	CLAIM	ACTV	DECREE	IR	2.50 CFS	05/01/1870	SWSESW	35	5S	8W	BE		ALBERS SLOUGH	OPEN A RANCH INC
41B	10702	CLAIM	ACTV	DECREE	IR	5.00 CFS	05/01/1870	SWSESW	35	5S	8W	BE		ALBERS SLOUGH	OPEN A RANCH INC
41B	10701	CLAIM	ACTV	DECREE	IR	10.00 CFS	05/01/1876	SWSESW	35	5S	8W	BE		ALBERS SLOUGH	OPEN A RANCH INC
41B	10703	CLAIM	ACTV	DECREE	IR	7.50 CFS	06/01/1888	NESENE	9	6S	8W	BE	WS	ALBERS SLOUGH	OPEN A RANCH INC
41D	93289	CLAIM	ACTV	USE	ST		01/01/1875	S2SESE	13	1N	11W	BE &		ALDER CREEK	FONG RMBP FAMILY TRUST TURNBULL, JEANETTE TURNBULL, MARK A SYRING, RALPH C SYRING, RUTH M TURNBULL, JEANETTE TURNBULL, MARK A ZUCKERS BIG HOLE RANCH LLC FONG RMBP FAMILY TRUST TURNBULL, JEANETTE TURNBULL, MARK A FLORA, DIEDRA W FLORA, WARD D FONG RMBP FAMILY TRUST SCHIFFERMAN, REED P SCHIFFERMAN, ROBIN SCOTT, EDGAR C SCOTT, JAMES E SPOLAR, CHERYL F SPOLAR, DONN USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	93272	CLAIM	ACTV	FILED	IR	8.26 CFS	07/24/1886	SESWNE	24	1N	12W	BE		ALDER CREEK	
41D	93273	CLAIM	ACTV	FILED	IR	7.20 CFS	06/27/1888	SESWNE	24	1N	12W	BE &		ALDER CREEK	
41D	196243	CLAIM	ACTV	FILED	IR	3.61 CFS	05/12/1900	SWSWNE	24	1N	12W	BE		ALDER CREEK	
41D	53676	CLAIM	ACTV	USE	ST		11/05/1906	N2N2	26	1N	12W	BE &		ALDER CREEK	
41D	93641	CLAIM	ACTV	USE	ST		08/13/1910	NESW	24	1N	12W	BE		ALDER CREEK	
41D	93642	CLAIM	ACTV	USE	IR		08/13/1910	NWNWSE	24	1N	12W	BE &		ALDER CREEK	
41D	53669	CLAIM	ACTV	USE	DM	8.98 GPM	11/05/1906	NWSWSE	11	1S	13W	BE	UT	ALDER CREEK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	93640	CLAIM	ACTV	USE	MD	35.00 GPM	07/01/1947	SESESW	24	1N	12W	BE	UT	ALDER CREEK	PAGE, CAROLYN J PAGE, CLIFTON G PAGE, CAROLYN J PAGE, CLIFTON G
41D	128084	CLAIM	ACTV	USE	IR	35.00 GPM	03/14/1961	NWSWNE	24	1N	12W	BE	UT	ALDER CREEK	CHELINI TRAILER COURT CHELINI, DANNETTE C

EXHIBIT XIII-3 (cont.)

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D

INDEX OF CLAIMS BY OWNER, BY WATER RIGHT ID

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;
POD Indicator: &=Only First POD Listed

WATER RIGHT ID	WATER RIGHT TYPE	VERSION STATUS	LATE CLAIM	HISTORICAL TYPE	USE	FLOW RATE	ENFORCEABLE PRIORITY DATE	POINT OF DIVERSION QTR SEC SEC TWP RGE CN	TRIB	SOURCE NAME	OWNER NAME
41B 4736	CLAIM	ACTV		FILED	MD	250.00 GPM	06/30/1957	SESENW 27 3S 6W MA		GROUNDWATER	ADAMS, LESLIE J
41B 4737	CLAIM	ACTV		FILED	MD	820.00 GPM	01/05/1968	SESENE 28 3S 6W MA		GROUNDWATER	ADAMS, LESLIE J
41B 211382	CLAIM	ACTV		FILED	MD	250.00 GPM	11/30/1959	SENESE 28 3S 6W MA		GROUNDWATER	ADAMS, LESLIE J
41D 36778	CLAIM	ACTV		FILED	ST		11/10/1924	SESE 2 4S 7W MA &		BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194273	CLAIM	ACTV		FILED	IR	3.56 CFS	04/15/1891	SESESW 21 4S 7W MA		BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194274	CLAIM	ACTV		FILED	IR	11.97 CFS	08/04/1879	SENWNE 21 4S 7W MA		BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194275	CLAIM	ACTV		USE	ST		12/31/1870	SESESE 16 4S 7W MA	UT	BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194276	CLAIM	ACTV		USE	ST		12/31/1870	SENESE 16 4S 7W MA	UT	BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194277	CLAIM	ACTV		USE	ST	10.00 GPM	12/31/1935	NWSWNW 15 4S 7W MA		GROUNDWATER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194278	CLAIM	ACTV		FILED	ST		12/31/1870	NESWNW 15 4S 7W MA	UT	BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194279	CLAIM	ACTV		USE	ST		12/31/1870	E2SE 10 4S 7W MA &		BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194280	CLAIM	ACTV		FILED	ST		12/31/1870	NENWSW 11 4S 7W MA	UT	BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 194281	CLAIM	ACTV		FILED	DM	20.00 GPM	12/31/1928	NESWSE 16 4S 7W MA		GROUNDWATER	ADAMS, ROBERT V REVOCABLE TRUST
41D 196238	CLAIM	ACTV		FILED	IR	4.00 CFS	11/10/1924	SWSSENW 11 4S 7W MA		BIG HOLE RIVER	ADAMS, ROBERT V REVOCABLE TRUST
41D 29150	CLAIM	ACTV		DECREE	IR	7.50 CFS	09/02/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29151	CLAIM	ACTV		DECREE	IR	2.50 CFS	05/01/1907	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29152	CLAIM	ACTV		DECREE	IR	15.00 CFS	04/25/1932	NESW 34 1S 16W BE &	WS	BIG HOLE RIVER, NORTH FORK	AG-PRODUCTS CO
41D 29153	CLAIM	ACTV		DECREE	IR	6.50 CFS	05/20/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29154	CLAIM	ACTV		DECREE	IR	4.00 CFS	08/31/1910	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29155	CLAIM	ACTV		DECREE	IR	7.00 CFS	06/01/1894	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29156	CLAIM	ACTV		DECREE	IR	3.00 CFS	05/25/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29157	CLAIM	ACTV		DECREE	IR	7.50 CFS	09/24/1900	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29158	CLAIM	ACTV		DECREE	IR	1.25 CFS	07/01/1897	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29159	CLAIM	ACTV		DECREE	IR	5.00 CFS	04/25/1932	N2N2 22 1S 16W BE &	WS	BIG HOLE RIVER, NORTH FORK	AG-PRODUCTS CO
41D 29160	CLAIM	ACTV		DECREE	IR	1.00 CFS	01/03/1906	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29161	CLAIM	ACTV		DECREE	IR	5.00 CFS	05/01/1899	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29162	CLAIM	ACTV		DECREE	IR	3.50 CFS	11/02/1904	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29163	CLAIM	ACTV		DECREE	IR	8.00 CFS	06/20/1912	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29164	CLAIM	ACTV		DECREE	IR	1.83 CFS	06/01/1912	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29165	CLAIM	ACTV		DECREE	IR	4.00 CFS	05/15/1895	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29166	CLAIM	ACTV		DECREE	IR	8.00 CFS	06/20/1912	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29167	CLAIM	ACTV		DECREE	IR	2.50 CFS	07/01/1900	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29168	CLAIM	ACTV		DECREE	ST		05/20/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29169	CLAIM	ACTV		DECREE	ST		07/01/1897	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29170	CLAIM	ACTV		DECREE	ST		09/24/1900	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29171	CLAIM	ACTV		DECREE	ST		05/25/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29172	CLAIM	ACTV		DECREE	ST		08/31/1910	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29173	CLAIM	ACTV		DECREE	ST		04/25/1932	NESW 34 1S 16W BE &	WS	BIG HOLE RIVER, NORTH FORK	AG-PRODUCTS CO
41D 29174	CLAIM	ACTV		DECREE	ST		06/01/1894	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29175	CLAIM	ACTV		DECREE	ST		05/01/1907	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 29176	CLAIM	ACTV		DECREE	ST		09/02/1898	SWSWSW 15 1S 16W BE &		MUSSIGBROD CREEK	AG-PRODUCTS CO
41D 194316	CLAIM	ACTV		USE	IR	20.00 GPM	08/01/1904	SWSWSE 31 1S 16W BE	UT	BIG HOLE RIVER, NORTH FORK	AG-PRODUCTS CO
41D 194317	CLAIM	ACTV		FILED	IR	6.25 CFS	03/18/1888	SWNENE 12 2S 17W BE &		TIE CREEK	AG-PRODUCTS CO
41D 194318	CLAIM	ACTV		FILED	IR	8.00 CFS	12/22/1903	NESESW 35 2S 17W BE		RUBY CREEK	AG-PRODUCTS CO

EXHIBIT XIII-3 (cont.)

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D INDEX OF CLAIMS BY POINT OF DIVERSION, BY WATER RIGHT ID

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;

WATER RIGHT ID	WATER RIGHT TYPE	VERSION STATUS	LATE CLAIM	HISTORICAL TYPE	USE	FLOW RATE	ENFORCEABLE PRIORITY DATE	POINT OF DIVERSION QTR SEC SEC TWP RGE CN	TRIB	SOURCE NAME	OWNER NAME
41G	195448	CLAIM	ACTV	FILED	MN	2.41 CFS	01/21/1932	SWNE 31 1N 7W SB	UT	BASIN CREEK	BUTTE HIGHLANDS MINING CO
41D	54326	CLAIM	ACTV	USE	ST		04/12/1906	SESWNW 5 1N 8W SB		CLIMAX GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54326	CLAIM	ACTV	USE	ST		04/12/1906	SWSWNW 5 1N 8W SB		CLIMAX GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54327	CLAIM	ACTV	USE	ST		04/12/1906	N2SE 5 1N 8W SB		CLIMAX GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54327	CLAIM	ACTV	USE	ST		04/12/1906	NESW 5 1N 8W SB		CLIMAX GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	92275	CLAIM	ACTV	A FILED	MN	1.25 CFS	06/25/1887	E2SENE 6 1N 8W SB		CLIMAX GULCH	MCLEOD, RICHARD M SHOBER, JOHN H
41D	92869	CLAIM	ACTV	FILED	IR	1.50 CFS	11/05/1918	SWSWNW 6 1N 8W SB		CLIMAX GULCH	WILLIAMS, DARYL B
41D	92277	CLAIM	ACTV	A FILED	MN	1.25 CFS	06/23/1887	NESWSE 6 1N 8W SB	UT	CURLY GULCH	MCLEOD, RICHARD M SHOBER, JOHN H
41D	92718	CLAIM	ACTV	USE	ST		12/31/1911	W2NENW 7 1N 8W SB	UT	CURLY GULCH	WILLIAMS, DARYL B
41D	92717	CLAIM	ACTV	USE	DM	10.00 GPM	03/06/1917	SESENW 7 1N 8W SB	UT	CURLY GULCH	WILLIAMS, DARYL B
41D	92868	CLAIM	ACTV	DECREE	IR	2.00 CFS	05/01/1898	SWSENW 7 1N 8W SB		CURLY GULCH	GARRISON RANCHES INC WILLIAMS, DARYL B
41D	92858	CLAIM	ACTV	FILED	ST		12/31/1895	SWSWNW 7 1N 8W SB	UT	CURLY GULCH	WILLIAMS, DARYL B
41D	92865	CLAIM	ACTV	DECREE	IR	5.00 CFS	06/01/1881	SWNWSW 7 1N 8W SB		CURLY GULCH	GARRISON RANCHES INC WILLIAMS, DARYL B
41D	92866	CLAIM	ACTV	DECREE	IR	2.50 CFS	06/01/1900	SWNWSW 7 1N 8W SB		CURLY GULCH	GARRISON RANCHES INC WILLIAMS, DARYL B
41D	92868	CLAIM	ACTV	DECREE	IR	2.00 CFS	05/01/1898	SWNWSW 7 1N 8W SB		CURLY GULCH	GARRISON RANCHES INC WILLIAMS, DARYL B
41D	92880	CLAIM	ACTV	FILED	ST		02/01/1915	SWSWSW 7 1N 8W SB	UT	CURLY GULCH	WILLIAMS, DARYL B
41D	92276	CLAIM	ACTV	A FILED	MN	1.25 CFS	06/23/1887	NWNWNW 8 1N 8W SB	UT	CURLY GULCH	MCLEOD, RICHARD M SHOBER, JOHN H
41D	54325	CLAIM	ACTV	USE	ST		04/12/1906	S2 8 1N 8W SB		CURLY GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54325	CLAIM	ACTV	USE	ST		04/12/1906	S2S2 9 1N 8W SB		CURLY GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54325	CLAIM	ACTV	USE	ST		04/12/1906	NE 16 1N 8W SB		CURLY GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54347	CLAIM	ACTV	USE	ST		04/12/1906	S2SE 16 1N 8W SB		MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54324	CLAIM	ACTV	USE	ST		04/12/1906	NESWSW 17 1N 8W SB	UT	CURLY GULCH	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	57023	CLAIM	ACTV	USE	ST		04/12/1906	W2SW 17 1N 8W SB	UT	DIVIDE CREEK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	18805	CLAIM	ACTV	USE	ST		12/31/1920	SWSW 18 1N 8W SB		FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	18806	CLAIM	ACTV	USE	ST		12/31/1920	SESWSW 18 1N 8W SB	UT	FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	92873	CLAIM	ACTV	FILED	IR	3.03 CFS	08/11/1911	SWSWSW 18 1N 8W SB		FLY CREEK	GARRISON RANCHES INC
41D	18803	CLAIM	ACTV	USE	ST		12/31/1920	SENESE 19 1N 8W SB	UT	FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	18804	CLAIM	ACTV	USE	ST		12/31/1920	SENESE 19 1N 8W SB	UT	FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	18815	CLAIM	ACTV	USE	DM	1.00 GPM	12/31/1938	SWNWNW 19 1N 8W SB	UT	FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	18807	CLAIM	ACTV	USE	ST		12/31/1938	NESWNW 19 1N 8W SB	UT	FLY CREEK	RICHARDS RANCH PARTNERSHIP
41D	54347	CLAIM	ACTV	USE	ST		04/12/1906	NENENE 21 1N 8W SB		MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	57024	CLAIM	ACTV	USE	ST		04/12/1906	NESW 21 1N 8W SB		TUCKER CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	57024	CLAIM	ACTV	USE	ST		04/12/1906	SENWSW 21 1N 8W SB		TUCKER CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	18801	CLAIM	ACTV	USE	ST		12/31/1920	NWSWSW 21 1N 8W SB	UT	TUCKER CREEK, NORTH FORK	RICHARDS RANCH PARTNERSHIP
41D	54347	CLAIM	ACTV	USE	ST		04/12/1906	NW 22 1N 8W SB		MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54348	CLAIM	ACTV	USE	ST		04/12/1906	W2 25 1N 8W SB		MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	57030	CLAIM	ACTV	USE	ST		04/12/1906	NWSENE 27 1N 8W SB		MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	54344	CLAIM	ACTV	USE	ST		04/12/1906	SESWSE 28 1N 8W SB	UT	MOOSE CREEK, NORTH FORK	USA (DEPT OF AGRICULTURE FOREST SERVICE)
41D	92798	CLAIM	ACTV	USE	IR	68.00 GPM	04/01/1940	NENWNE 29 1N 8W SB	UT	TUCKER CREEK, NORTH FORK	FORCELLA, ALTHEA A LIVING TRUST
41D	214712	CLAIM	ACTV	USE	IR	1.00 CFS	04/01/1940	SESENW 29 1N 8W SB	UT	TUCKER CREEK, NORTH FORK	FORCELLA, ALTHEA A LIVING TRUST
41D	92879	CLAIM	ACTV	USE	ST		03/01/1949	S2N2 30 1N 8W SB		TUCKER CREEK, NORTH FORK	GARRISON RANCHES INC
41D	92857	CLAIM	ACTV	FILED	ST		12/31/1920	NESENW 30 1N 8W SB	UT	TUCKER CREEK, NORTH FORK	GARRISON RANCHES INC

EXHIBIT XIII-3 (cont.)

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D

INDEX OF CLAIMS BY ENFORCEABLE PRIORITY DATE, BY SOURCE NAME

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;
POD Indicator: &=Only First POD Listed

WATER RIGHT ID	WATER RIGHT TYPE	VERSION STATUS	LATE CLAIM	HISTORICAL TYPE	USE	FLOW RATE	ENFORCEABLE PRIORITY DATE	POINT OF DIVERSION					TRIB	SOURCE NAME	OWNER NAME
								QTR	SEC	SEC	TWP	RGE	CN		
41D	78182	CLAIM	ACTV		USE	1.26 GPM	12/31/1858	SWSENE	2	5S	10W	BE	UT	BARBOUR GULCH	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78155	CLAIM	ACTV		USE		12/31/1858	NENWNW	18	1S	16W	BE	UT	BENDER CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78149	CLAIM	ACTV		USE		12/31/1858	SENE	14	1S	10W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78162	CLAIM	ACTV		USE		12/31/1858	SWSWNE	10	3S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78165	CLAIM	ACTV		USE		12/31/1858	NWNWSE	18	3S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78167	CLAIM	ACTV		USE		12/31/1858	SWNESW	21	3S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78168	CLAIM	ACTV		USE		12/31/1858	NWSWSW	28	3S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78176	CLAIM	ACTV		USE		12/31/1858	NENWNW	21	4S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78178	CLAIM	ACTV		USE		12/31/1858	SENE	29	4S	9W	BE	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78186	CLAIM	ACTV		USE		12/31/1858	SWNWNW	34	2N	12W	DL	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78214	CLAIM	ACTV		USE		12/31/1858	SWSWSW	33	3S	8W	MA	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78215	CLAIM	ACTV		USE		12/31/1858	NENWNW	4	4S	8W	MA	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78218	CLAIM	ACTV		USE		12/31/1858	NENENE	5	4S	8W	MA	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78236	CLAIM	ACTV		USE		12/31/1858	NENESE	32	1N	10W	SB	UT	BIG HOLE RIVER	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78188	CLAIM	ACTV		USE		12/31/1858	SWNESE	32	1S	7W	MA	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78190	CLAIM	ACTV		USE		12/31/1858	SESESE	32	1S	7W	MA	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78198	CLAIM	ACTV		USE		12/31/1858	SWSESE	11	2S	8W	MA	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78200	CLAIM	ACTV		USE		12/31/1858	NENENE	12	2S	8W	MA	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78257	CLAIM	ACTV		USE		12/31/1858	SESESE	33	1S	8W	SB	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78271	CLAIM	ACTV		USE		12/31/1858	NWNENE	2	2S	8W	SB	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78274	CLAIM	ACTV		USE		12/31/1858	SESESE	8	2S	8W	SB	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78276	CLAIM	ACTV		USE		12/31/1858	NENENE	9	2S	8W	SB	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)
41D	78278	CLAIM	ACTV		USE		12/31/1858	NWSENW	9	2S	8W	SB	UT	CAMP CREEK	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)

EXHIBIT XIII-3 (cont.)

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D INDEX OF CLAIMS BY WATER RIGHT ID NUMBER

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;
POD Indicator: &=Only First POD Listed

WATER RIGHT ID	WATER RIGHT TYPE	VERSION STATUS	LATE CLAIM	HISTORICAL TYPE	USE	FLOW RATE	ENFORCEABLE PRIORITY DATE	POINT OF DIVERSION QTR SEC SEC TWP RGE CN	TRIB	SOURCE NAME	OWNER NAME
41D	442	CLAIM	ACTV	FILED	DM	11.22 GPM	06/12/1912	SESWNW 9 3S 7W MA		ROCHESTER CREEK	CLAMP, MARY D NORMOYLE, JEFFRIE LYNN OHARA FAMILY TRUST WALKER, JEFFREY B WALKER, PATTY
41D	443	CLAIM	ACTV	FILED	IR	437.58 GPM	06/12/1912	SESWNW 9 3S 7W MA		ROCHESTER CREEK	CLAMP, MARY D NORMOYLE, JEFFRIE LYNN OHARA FAMILY TRUST WALKER, JEFFREY B WALKER, PATTY
41D	444	CLAIM	ACTV	FILED	MN	1.00 CFS	06/12/1912	SESWNW 9 3S 7W MA		ROCHESTER CREEK	CLAMP, MARY D NORMOYLE, JEFFRIE LYNN OHARA FAMILY TRUST WALKER, JEFFREY B WALKER, PATTY
41D	1080	CLAIM	ACTV	DECREE	IR	1.25 CFS	05/05/1907	SWNNWNW 3 1S 11W BE		WISE RIVER	HURSH, KENNETH G NICHOLS, SHERRIL NICHOLS, THEODORE W
41D	1842	CLAIM	ACTV	FILED	IR	5.00 CFS	09/27/1922	NESESW 11 4S 7W MA		BIG HOLE RIVER	ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G
41D	1843	CLAIM	ACTV	FILED	IR	4.00 CFS	01/20/1922	NESESW 11 4S 7W MA		BIG HOLE RIVER	ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G
41D	1917	CLAIM	ACTV	FILED	IR	3.00 CFS	01/19/1922	NESESW 11 4S 7W MA		BIG HOLE RIVER	ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G
41D	2386	CLAIM	ACTV	FILED	DM	30.00 GPM	07/22/1966	NENESE 5 1S 10W BE		GROUNDWATER	HOLLY, JOE HOLLY, MARY
41D	2494	CLAIM	ACTV	FILED	IR	1.52 CFS	06/30/1881	NESESW 11 4S 7W MA		BIG HOLE RIVER	OSBORNE, JAMES H OSBORNE, LORELIE A
41D	3169	CLAIM	ACTV	FILED	IR	3.45 CFS	01/01/1914	NESESW 11 4S 7W MA		BIG HOLE RIVER	MARSHALL, RICHARD D TRUST
41D	3409	CLAIM	ACTV	USE	IR	10.23 CFS	05/15/1910	NESENE 30 2N 11W DL		BEAR CREEK	WATER SIDE ENTERPRISES LLC
41D	3410	CLAIM	ACTV	FILED	IR	6.25 CFS	06/05/1956	NWNWSW 19 2N 11W DL		PANAMA CREEK	WATER SIDE ENTERPRISES LLC
41D	3411	CLAIM	ACTV	FILED	IR	4.55 CFS	08/30/1898	NENWNE 36 2N 12W DL		BEAR CREEK	JOHNSON, HOWARD E KUJALA, QUENTIN
41D	3509	CLAIM	ACTV	FILED	IR	7.58 CFS	01/01/1914	NESESW 11 4S 7W MA		BIG HOLE RIVER	WATER SIDE ENTERPRISES LLC ASHCRAFT, CINDY SUE ASHCRAFT, DAVID P ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G SWITZLER, BARBARA A SWITZLER, THOMAS D
41D	3672	CLAIM	ACTV	FILED	MD	20.00 GPM	07/09/1966	NWNESE 5 1S 10W BE		GROUNDWATER	KUECKS, RONALD H
41D	3783	CLAIM	ACTV	USE	DM	20.00 GPM	07/31/1952	NWSESW 26 2S 9W SB		GROUNDWATER	DECKER, MARGARET M
41D	3784	CLAIM	ACTV	USE	DM	30.00 GPM	12/31/1959	NWSESW 26 2S 9W SB		GROUNDWATER	DECKER, MARGARET M
41D	4203	CLAIM	ACTV	FILED	IR	7.50 CFS	03/06/1886	SESENW 31 1N 11W BE &		MEADOW CREEK	STANCHFIELD CATTLE CO
41D	4204	CLAIM	ACTV	FILED	IR	4.00 CFS	07/10/1902	SENWSE 31 1N 11W BE &		MEADOW CREEK	STANCHFIELD CATTLE CO
41D	4205	CLAIM	ACTV	FILED	IR	8.00 CFS	07/01/1903	SENWSE 31 1N 11W BE &		MEADOW CREEK	STANCHFIELD CATTLE CO

EXHIBIT XIII-3 (cont.)

04/06/2007

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION BIG HOLE RIVER BASIN 41D INDEX OF CLAIMS WITH ISSUE REMARKS

TRIB Values: CB=Closed Basin, MP= Manmade Pit, NO=Natural Overflow, NP=Natural Pit, OF=Overflow and Waste Water, SI=Subirrigation, SP=Spring, WS=Waste & Seepage, WW=Waste Water, UT=Unnamed Tributary;

WATER RIGHT ID	WATER RIGHT TYPE	VERSION	USE STATUS		FLOW RATE	VOLUME (AF)	ACRES	ENFORCEABLE PRIORITY DATE	TRIB	SOURCE NAME	OWNER NAME
41D	443	CLAIM	ACTV	IR	437.58 GPM		80.00	06/12/1912		ROCHESTER CREEK	CLAMP, MARY D NORMOYLE, JEFFRIE LYNN OHARA FAMILY TRUST WALKER, JEFFREY B WALKER, PATTY
		PLACE OF USE ISSUE			THE CLAIMED PLACE OF USE MAY BE QUESTIONABLE AND WAS NOT EXAMINED. THE MADISON COUNTY WATER RESOURCES SURVEY (1954) DOES NOT COVER THIS AREA AND THERE IS NO AERIAL PHOTO COVERAGE.						
41D	444	CLAIM	ACTV	MN	1.00 CFS			06/12/1912		ROCHESTER CREEK	CLAMP, MARY D NORMOYLE, JEFFRIE LYNN OHARA FAMILY TRUST WALKER, JEFFREY B WALKER, PATTY
		DIVERSION MEANS ISSUE			THE CLAIMED MEANS OF DIVERSION APPEARS TO BE INCORRECT AND CANNOT BE CONFIRMED DUE TO LACK OF DATA.						
		FLOW RATE ISSUE			THE CLAIMED FLOW RATE CANNOT BE CONFIRMED DUE TO A LACK OF DATA.						
		GENERAL INFORMATION ISSUE			A WITHDRAWAL WAS SUBMITTED 09/07/1994 WHICH HAS NOT BEEN IMPLEMENTED. THIS WITHDRAWAL WAS NOT SIGNED BY ALL OF THE OWNERS LISTED IN THE DNRC RECORDS.						
		PERIOD OF USE ISSUE			THE CLAIMED PERIOD OF USE MAY BE QUESTIONABLE. USE OF THIS WATER MAY NOT BE FEASIBLE DURING WINTER MONTHS.						
41D	1080	CLAIM	ACTV	IR	1.25 CFS		5.20	05/05/1907		WISE RIVER	HURSH, KENNETH G NICHOLS, SHERRI L NICHOLS, THEODORE W
		DECREE EXCEEDED			THE WATER RIGHTS LISTED FOLLOWING THIS STATEMENT ARE FILED ON THE SAME FORMERLY DECREED WATER RIGHT. THE SUM OF THE CLAIMED FLOW RATES EXCEEDS THE 100 MINER'S INCHES DECREED IN CASE NO. 2627 , BEAVERHEAD COUNTY. 1080-00, 27459-00, 93824-00.						
		FLOW RATE ISSUE			THE CLAIMED FLOW RATE MAY BE EXCESSIVE. THE DEED OF DISTRIBUTION TRANSFERRED 5/6 OF THE WATER RIGHT REPRESENTING ABOUT 5 MINERS INCHES OF WATER.						
		FLOW RATE ISSUE, STANDARDS			THE CLAIMED FLOW RATE EXCEEDS THE 17 GPM PER ACRE GUIDELINE AND CANNOT BE CONFIRMED DUE TO LACK OF DATA. THE FLOW RATE EQUALS 108.00 GPM PER ACRE.						
41D	1842	CLAIM	ACTV	IR	5.00 CFS		203.00	09/27/1922		BIG HOLE RIVER	ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G
		PLACE OF USE ISSUE			THE MADISON COUNTY WATER RESOURCES SURVEY (1954) APPEARS TO INDICATE 175.00 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.						
41D	1843	CLAIM	ACTV	IR	4.00 CFS		203.00	01/20/1922		BIG HOLE RIVER	ASHCRAFT, LORETTA G ASHCRAFT, NORMAN G
		PLACE OF USE ISSUE			THE MADISON COUNTY WATER RESOURCES SURVEY (1954) APPEARS TO INDICATE 175.00 ACRES IRRIGATED. A DESCRIPTION OF THESE ACRES IS IN THE CLAIM FILE.						

EXHIBIT XIII-4

DECREE INDEX INSTRUCTIONS

The attached index is designed to help a person research and find water rights included in the decree. The decree consists of a computer-printed abstract for each individual water right decreed in the basin. Depending on the number of water rights within a basin, the decree may be in one or more volumes. Each volume is organized numerically by a water right identification (ID) number.

Whenever a water right is referred to or discussed, use the entire water right ID number. This is the best way to be sure that everyone is communicating about the same water right.

Example of ID number: 41H-W-119240-00

41H	Code for drainage basin.
W-119240-00	Specific identification number assigned to each water right by Department of Natural Resources and Conservation (DNRC)

There are six sections to the index. Each section is organized in a different manner, as outlined below.

1. SOURCE NAME INDEX

This index lists all water rights alphabetically by the source name (source at point of diversion). If the point of diversion of a water right is not on the "main stem" of the source listed, a two letter tributary code will be shown immediately to the left of the source name. For example, UT West Gallatin River means the water right is diverted from an Unnamed Tributary to the West Gallatin River. Additional tributary codes are: SP (spring), WS (waste and seepage), SI (subirrigation), NP (natural pit), MP (manmade pit).

Some sources have more than one commonly used name but only one has been selected as the standardized name. Standardization was based on names designated by the United States Geological Survey, Water Resources Survey, or that in most common local usage. It is recommended that all known names be checked. Also keep in mind that some source names (Spring Creek, Deer Creek, etc..) might identify more than one stream in a basin.

Water rights with the same source name are listed chronologically by priority date. This secondary sort is useful in identifying the seniority of water rights on a specific source.

2. OWNER NAME INDEX:

This index organizes all water rights alphabetically by all owner names. If you want to locate John Q. Public's water rights, look under "P" for Public. If a partnership or corporation is involved, such as Big Sky Angus Ranch, look under "B" for Big. Be sure to look for all likely owner names (ranch name, estate name, etc.) when you use this index as some owners filed rights both under a corporate name and individually.

EXHIBIT XIII-4 (cont.)

3. POINT OF DIVERSION INDEX:

In this index, every point of diversion for each water right in the basin is listed by legal land description. The land descriptions are listed from lowest numbered township and range to highest numbered township and range. Within each township and range the sections are listed numerically.

Water rights with the same point of diversion are listed chronologically by priority date. This secondary sort is useful in identifying the seniority of water rights diverted at a particular location.

4. PRIORITY DATE:

All water rights within the drainage are listed from earliest to latest priority date according to month/day/year. Where no priority date has been decreed, the index shows 00/00/0000. Check the individual decree abstract for an explanation.

Water rights with the same priority date are organized alphabetically by source name. For example, all June 15, 1865, water rights from the West Gallatin River would be together.

5. WATER RIGHT ID INDEX:

Every water right has been assigned an identification number, for example, 41H-W-119240-00. This index organizes all water right ID numbers in numerical order from lowest to highest.

6. ISSUE REMARKS INDEX:

This index is a list of the remarks used by the Water Courts to identify certain problems or issues in the decree. The Water Court used these remarks when there was insufficient information to resolve a problem or potential problem.

This index is arranged numerically by water right ID number. For each right listed the use, flow rate, priority date, source name, and owners are given along with the text of the issue remarks.

SUMMARY:

If you have questions about how to look up water right information in these indexes or how to read the decree abstracts, please contact the DNRC Water Rights Bureau Field Office listed in the Notice of Entry for the decree of this basin.

If you have questions about the correctness of any information in a particular water right, contact the Water Court and perhaps file an objection. How to file an objection is outlined in the Notice of Entry for the decree in each basin.

EXHIBIT XIII-4 (cont.)

COUNTY CODES

BE	Beaverhead	MC	McCone
BH	Big Horn	ME	Meagher
BL	Blaine	MI	Mineral
BR	Broadwater	MS	Missoula
CA	Carbon	MU	Musselshell
CH	Chouteau	PA	Park
CR	Carter	PE	Petroleum
CS	Cascade	PH	Phillips
CU	Custer	PI	Prairie
DA	Daniels	PO	Pondera
DL	Deer Lodge	PR	Powder River
DW	Dawson	PW	Powell
FA	Fallon	RA	Ravalli
FE	Fergus	RI	Richland
FL	Flathead	RO	Roosevelt
GA	Gallatin	RS	Rosebud
GF	Garfield	SA	Sanders
GL	Glacier	SB	Silver Bow
GR	Granite	SG	Sweet Grass
GV	Golden Valley	SH	Sheridan
HI	Hill	ST	Stillwater
JB	Judith Basin	TE	Teton
JE	Jefferson	TO	Toole
LA	Lake	TR	Treasure
LC	Lewis and Clark	VA	Valley
LI	Liberty	WH	Wheatland
LN	Lincoln	WI	Wibaux
MA	Madison	YE	Yellowstone
		YP	Yellowstone Park

USE CODES

AS	agricultural spraying	LG	lawn and garden
CM	commercial	MC	municipal
DM	domestic	MD	multiple domestic
DW	dewatering	MN	mining
EC	erosion control	NV	navigation
ED	exploratory drilling	OF	oil well flooding
FC	flood control	OT	observation & testing of groundwater aquifer
FP	fire protection	PA	pollution abatement
FR	fish raceways	PG	power generation
FW	fish and wildlife	RC	recreation
GP	geothermal, power generation	SC	sediment control
IN	industrial	ST	stockwatering
IR	irrigation	WI	wildlife
IS	institutional		

EXHIBIT XIII-5

CHANGE OF OWNERSHIP LETTER

(Use State of Montana Letterhead)

January 10, 2000

John Q. Wateruser
Bottomland Ranch
Floodplain, MT 59999

RE: Water Right No. 99Z-W999999-00

Dear Mr. Wateruser:

Do you claim any interest to the above water rights? Water right documents have been returned to us because the U.S. Postal Service could not deliver them. Further research on our part shows you may be the party who is the successor in interest to these water rights.

If you are the present owner of these water rights, please fill out the enclosed ownership update form and send or take it to the Water Resources Regional Office in your area. Montana Statute 85-2-424, MCA, requires this ownership update be filed.

After the Department has received the ownership update form, your name will be added as an owner to this water right. The enclosed notice and water right abstracts are for your immediate information concerning adjudication proceedings in your area. Please be aware of specific deadlines that are set in this notice.

If you are not the present owner or choose not to maintain entitled interest, we would appreciate having that information for our records.

Please contact this office if you need further information. Thank you for your attention to this matter.

Sincerely,

Kraig VanVoast
Water Resources Specialist

Enclosures: Ownership Update Form
Notice of Availability
Water Right Abstracts

EXHIBIT XIII-6

RETURNED MAIL INDEX

DATABASE ADMINISTRATOR													SUPPORT STAFF	REGIONAL/UNIT OFFICE				
ROW#	TYPE	FST_NAME	LST_NAME	ADDR_LN_1	ADDR_LN_2	ADDR_LN_3	OWNER_CITY_ST_ZP	CUST_ID_SEQ	LOWEST WR	OFFICE RESPONSIBLE	CUSTOMER STATUS	OTHER OWNERS	DATE RETURN MAIL RECEIVED	DATE RESEARCHED	RESEARCH BY	NEW ADDRESS/DB FORM COMPLETED	NEW OWNER/608 SENT	DEAD END
178	ADJ	GRETCHEN M	SMITH	3019 PHOENIX			LAS VEGAS, NV 89121	47544	41F 132783-00	BOZEMAN	DECEASED	Y	4/7/2009	4/7/2009	TM-BUO			
433	ADJ	PIERRE	SONDERER	PO BOX 1074			ENNIS, MT 59729 1074	45702	41F 31652-00	BOZEMAN	LOCATION UNKNOWN	Y	4/7/2009	4/9/2009	TM-BUO			
835	NA	BARBARA L	STAMMERS	PO BOX 95			MC ALLISTER, MT 59740	43882					4/7/2009					
966	NA	CLARENCE R	STAMMERS	PO BOX 95			MC ALLISTER, MT 59740	43822					4/7/2009					
1421	NA	JO	STEVENS	850 MANLEY RD			BOZEMAN, MT 59715	42050					4/7/2009					
1258	NA	GLORIA	STOEBER	1 N 301 INDIAN KNOLL			WEST CHICAGO, IL 60185	41103					4/7/2009					
2208	NA	WILLIAM	STOEBER	1 N 301 INDIAN KNOLL			WEST CHICAGO, IL 60185	41104					4/7/2009					
750	ADJ		THEXTON RANCH CO	PO BOX 641			ENNIS, MT 59729	2855					4/7/2009					
1422	NA	JO	THOMPSON	444 MT HWY 287			DILLON, MT 59725	34981					4/7/2009					
2129	NA	THOMAS F	TILLMAN	PO BOX 171			ENNIS, MT 59729	34076					4/7/2009					
2025	NA	SCOTT	TOMLIN	PO BOX 32091			BILLINGS, MT 59107 2091	33332					4/7/2009					
825	NA	BARBARA	TROCHTA	PO BOX 895			WEST YELLOWSTONE, MT 59758 0895	32109					4/7/2009					
1010	NA	DANIEL	TROCHTA	PO BOX 895			WEST YELLOWSTONE, MT 59758 0895	32110					4/7/2009					
1912	NA	RICHARD H	WATSON	PO BOX 731			WEST YELLOWSTONE, MT 59758	24664					4/7/2009					
37	ADJ	BONNIE B	WEST	PO BOX 2802			NORRIS, MT 59745	22533					4/7/2009					
422	ADJ	PAUL B	WEST	PO BOX 2802			NORRIS, MT 59745	22471					4/7/2009					
2008	NA	SAMUEL L	WEST	PO BOX 519			ENNIS, MT 59729	22488					4/7/2009					
359	ADJ	MARGARET F	WHITMAN	280 WHITMAN RD			WEST YELLOWSTONE, MT 59758 8725	21112					4/7/2009					
474	ADJ	ROLAND B	WHITMAN	280 WHITMAN RD			WEST YELLOWSTONE, MT 59758 8725	21117					4/7/2009					
28	ADJ	BARRY J	WILCOX	515 9TH ST W			HAVRE, MT 59501	20458					4/7/2009					
2402	NA		WILLIAMSON TRUST	% 11373 HEBGEN LAKE RD			WEST YELLOWSTONE, MT 59758	224001					4/7/2009					
1197	NA	FRANCES B	WOODFIELD	409 S OAKS			HELENA, MT 59601	212230					4/7/2009					
1295	NA	HILDIE	YOUNG	PO BOX 1278			ENNIS, MT 59729	213921					4/7/2009					

EXHIBIT XIII-7

TETON RIVER BASIN (41O)

CERTIFICATE OF MAILING

The Notice of Entry of Temporary Preliminary Decree and Notice of Availability for the Teton River Basin
(41O)

State of Montana)
) ss:
County of Lewis and Clark)

I, TERRI MCLAUGHLIN, of the Water Resources Division of the Department of Natural Resources and Conservation of the State of Montana, certify that:

A. The Returned Mail received by the Water Rights Bureau, Department of Natural Resources and Conservation following the mailing of the Notice of Entry of Temporary Preliminary Decree and Notice of Availability for the Teton River Basin (41O) has been researched and processed as of MM/DD/YYYY.

B. The Returned Mail from the mailing of Notice of Entry of Temporary Preliminary Decree and Notice of Availability for the Teton River Basin (41O) for which a current owner or address could not be identified is attached.

This returned mail research was made under my direction and control on
December 29, 2005.

Signed and sworn to this _____ day of _____.

Terri McLaughlin, Bureau Chief
Water Rights Bureau, Department of Natural
Resources and Conservation

State of Montana)
) ss.
County of Lewis & Clark)

Signed and sworn to before me on the _____ day of _____ by Terri McLaughlin.

Notary Public for the State of Montana
Residing at _____, Montana
My commission expires _____

EXHIBIT XIII-8

Notice of Intent to Appear

MONTANA WATER COURT - YELLOWSTONE DIVISION
TONGUE RIVER, BELOW HANGING WOMAN CREEK - BASIN (42C)

IN THE MATTER OF THE ADJUDICATION OF)
THE EXISTING RIGHTS TO THE USE OF ALL)
THE WATER, BOTH SURFACE AND UNDER-)
GROUND, WITHIN THE TONGUE RIVER,)
BELOW HANGING WOMAN CREEK,)
BASIN 42C)
_____)

NOTICE OF INTENT TO APPEAR

1. Claim # _____
2. Source _____
3. County _____

4. Name, Address, and Phone Number of Party Appearing:

Last Name First Name Middle Initial

Street Address or Post Office Box

City State Zip Code Phone

5. Name, Address, and Phone Number of Party's Attorney, if any

Last Name First Name Middle Initial

Street Address or Post Office Box

City State Zip Code Phone

(TURN FORM OVER AND COMPLETE BACKSIDE)

EXHIBIT XIII-8 (cont.)

6. State the changes that you think should be made to this claim and why.

Appearing Party
(Your Name)

YOU MUST MAIL A COPY OF THIS NOTICE OF INTENT TO APPEAR TO THE OWNER OF THIS WATER RIGHT. COMPLETION OF THE CERTIFICATE OF MAILING, FOUND BELOW, INDICATES TO THE COURT THAT YOU HAVE MAILED A COPY OF THIS NOTICE OF INTENT TO APPEAR TO THE OWNER(S) OF THIS WATER RIGHT.

CERTIFICATE OF MAILING

I, _____, do solemnly swear that on the _____ day of _____, 20____, I placed a copy of this Notice of Intent to Appear in the U. S. Mail, postage prepaid. The copy of this Notice of Intent to Appear was mailed to the owner(s):

Name: _____

Name: _____

Address: _____

Address: _____

City & State: _____

City & State: _____

Appearing Party
(Your Name)

Please send this completed form to: **Montana Water Court**
PO Box 1389
Bozeman, MT 59771-1389
Phone: (406) 586-4364 Fax: (406) 522-4131

***THIS FORM MUST BE RECEIVED AND FILED AT
THE MONTANA WATER COURT BY 5:00 PM ON AUGUST 25, 2009.***